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South African species of *Aneuclis* Förster, 1869 (Hymenoptera: Ichneumonidae: Tersilochinae)

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ABSTRACT

Six new species of the ichneumonid genus *Aneuclis* are described from South Africa: *A. laminosa* sp. n., *A. lanternaria* sp. n., *A. larga* sp. n., *A. lasciva* sp. n., *A. lugubris* sp. n., and *A. vannoorti* sp. n. A key to known Afrotropical species of *Aneuclis* is provided.

KEY WORDS: Hymenoptera, Ichneumonidae, Tersilochinae, *Aneuclis*, Afrotropical, new species, identification key.

INTRODUCTION

This contribution continues the study of Afrotropical tersilochines started in my previous paper (Khalaim 2007), in which a key to genera is provided. This article covers the genus *Aneuclis* Förster, 1869. Species of *Aneuclis* have previously been described only from the Palaearctic Region (Yu *et al*. 2005).

Aneuclis belongs to the "*Diaparsis*" genus group, which also includes the genera *Diaparsis* Förster and *Sathropterus* Förster, and is characterized by the first metasomal segment having isolated glymma (not joined by a furrow to ventral part of postpetiole) or lacking glymma, the fore wing having the second recurrent vein interstitial or postfurcal, and the propodeum almost always having a basal keel. *Aneuclis* differs from the genus *Diaparsis* by the brachial cell of fore wing being widely open at apex and the posterior part of the postnervulus being absent (Khalaim 2007, fig. 6), and from the genus *Sathropterus* by the presence of a second recurrent vein and by the ovipositor being evenly upcurved, not sinuate apically.

Aneuclis is a medium-sized genus with 16 species described from the Palaearctic Region (Khalaim 2004). Townes (1971) also mentioned undescribed species from the Nearctic, Oriental and Afrotropical regions. Six species are described below from South Africa: *A. laminosa* sp. n., *A. lanternaria* sp. n., *A. larga* sp. n., *A. lasciva* sp. n., *A. lugubris* sp. n. and *A. vannoorti* sp. n. An identification key to known Afrotropical species of *Aneuclis* is provided.

In the Palaearctic Region, species of *Aneuclis* have been reared from coleopteran hosts of Chrysomelidae, Curculionidae and Nitidulidae on cruciferous plants, and are mainly associated with herbaceous landscapes. No details are known of the host preferences of Afrotropical species.

MATERIAL AND METHODS

Material from the collections of the Iziko South African Museum in Cape Town was studied. Photographs were taken via a Leica MZ16 stereomicroscope with an integrated Leica camera. The images were assembled with Helicon Focus software and edited in Adobe Photoshop CS2. Terminology for morphological structures mainly follows Townes (1969). Types of the new species are deposited in the Iziko South African

Museum (SAMC) and the Zoological Institute of the Russian Academy of Sciences, St Petersburg (ZISP).

TAXONOMY

Genus *Aneuclis* Förster, 1869

Type species: *Isurgus rufipes* Szépligeti, 1899 (*Thersilochus maritimus* Thomson, 1889).

Diagnosis: The genus includes small species with body length about 3.0 mm. Head and mesosoma more or less granulate, sometimes with smooth shining areas, impunctate or finely punctate. Head rather strongly narrowed behind eyes in dorsal view, temple distinctly shorter than eye width. Antenna filiform. Flagellum of Afrotropical species 14- or 15-segmented (13–23-segmented in Palaearctic species). Notaulus absent or weak, sometimes substituted by a short carina. Sternaulus absent or weak, in anterior part of mesopleuron. Propodeum with basal keel (sometimes indistinct) which is shorter than the apical area. Second recurrent vein interstitial or postfurcal. Brachial cell widely open at apex, with posterior part of postnervulus absent. First metasomal segment slender, with petiole more or less round in transverse section, with small isolated glymma (not joined by a furrow to ventral part of postpetiole) or without glymma. Ovipositor evenly upcurved, with shallow dorsal subapical depression, from short to very long.

All species are rather uniform and very few diagnostic characters are available. Males of *Aneuclis* are much more difficult to recognize than the females.

Key to Afrotropical species of *Aneuclis*

1 Second recurrent vein interstitial (Figs 10, 16) 2
– Second recurrent vein postfurcal (Figs 2, 12) 3

2 Vein 2*rs–m* very short (Fig. 16). Clypeus yellow, darkened in upper part. Metacarp almost reaching apex of fore wing (Fig. 16). First tergite without glymma, with petiole finely striate laterally. Ovipositor sheath 1.3 times as long as first tergite (Fig. 18) ..... **lasciva** sp. n., ♀
– Vein 2*rs–m* longer (Fig. 10). Clypeus entirely yellow (Fig. 5). Metacarp shorter, ending far short of apex of fore wing. First tergite with small but distinct glymma (Fig. 7), entirely smooth. Ovipositor sheath almost 3.0 times as long as first tergite (Fig. 6) ..... **lanternaria** sp. n., ♀

3 Legs mostly brown to fuscous (Fig. 19). Antenna black. Metasoma behind first segment dark brown, sometimes black. Ovipositor sheath about twice as long as first tergite ..... **lugubris** sp. n., ♀ ♂
– Legs yellowish, with hind leg sometimes slightly infuscate (Fig. 8). Antenna more or less yellowish or brownish yellow basally (Figs 9, 22). Metasoma behind first segment sometimes extensively yellow-brown (Fig. 8). Ovipositor sheath length various 4

4 Females 5
– Males (unknown for *A. laminosa* sp. n.) 7

5 Ovipositor sheath as long as first tergite or shorter (Fig. 14) ..... **larga** sp. n.
– Ovipositor sheath at least 1.8 times as long as first tergite 6

6 Ovipositor sheath about 1.9 times as long as first tergite. Head, in dorsal view, strongly narrowed and moderately rounded behind eyes. Propodeum with basal keel very short and apical area strongly acute anteriorly (Fig. 23) .... **vannoorti** sp. n.

– Ovipositor sheath about 2.4 (rarely 2.1) times as long as first tergite. Head, in dorsal view, more weakly and roundly narrowed behind eyes. Propodeum with basal keel longer and apical area less acute or rounded anteriorly (Fig. 1) .... **laminosa** sp. n.

7 Apical area of propodeum rounded or slightly acute (producing angle of about 85°) anteriorly (Fig. 13). Basal keel about 0.4 times as long as apical area (Fig. 13) .... **larga** sp. n.

– Apical area of propodeum strongly acute anteriorly (Fig. 23). Basal keel at the most 0.3 times as long as apical area (Fig. 23) ..... **vannoorti** sp. n.

Aneuclis laminosa sp. n.

Figs 1–3

Etymology: From Latin *laminosus* (light, bright).

Description:

Female.

Body length 2.45 mm.

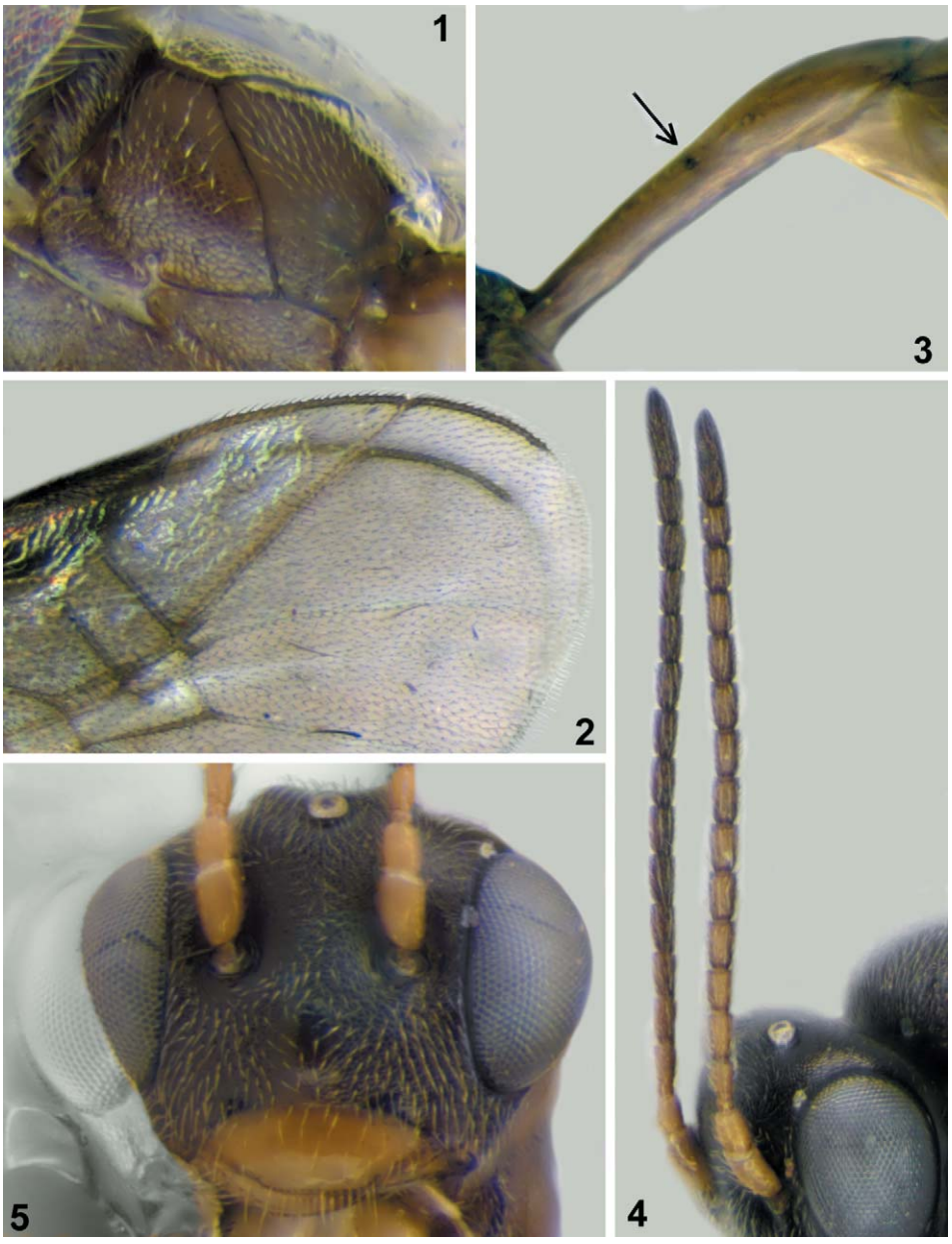
Head moderately roundly narrowed behind eyes in dorsal view; temple almost 0.66 times as long as eye width. Flagellum usually with 14 segments, in one specimen with 15 segments; all flagellomeres distinctly elongate. Upper tooth of mandible longer than lower tooth. Malar space subequal to basal width of mandible. Face and frons granulate, impunctate. Vertex very finely granulate, matt. Temple finely granulate to smooth and shining.

Mesonotum and mesopleuron granulate, sometimes also finely punctate. Notaulus substituted by a short sharp carina. Sternaulus in anterior part of mesopleuron usually weak and without transverse wrinkles. Propodeum entirely granulate, impunctate; basal keel distinct, about 0.38 times as long as apical area; spiracle separated from pleural carina by 1.5–2.0 diameters of spiracle; apical area rounded or pointed anteriorly (Fig. 1), its longitudinal carinae usually not reaching transverse carina.

Fore wing length 1.9 mm. First section of radial vein longer than width of pterostigma. Metacarp not quite reaching apex of fore wing. Second recurrent vein postfurcal (Fig. 2).

First tergite length 0.53 mm; tergite slender, entirely smooth, usually with distinct glymma (Fig. 3). Second tergite length 0.23 mm. Thyridia slightly elongate to twice as long as wide, sometimes very shallow and indistinct. Ovipositor with weak roundish tooth before dorsal subapical depression; sheath 1.28 mm, about 2.4 times as long as first tergite (2.1 times in one female).

Body dark brown to black. Palpi, mandibles (except reddish teeth), scape and pedicel of antenna ventrally, tegula and legs (sometimes hind coxa and femur slightly infuscate) brownish yellow. Pterostigma brown, sometimes with more or less distinct pallid marks basally and apically. Metasoma yellowish brown to dark brown, sometimes entirely brown.



Figs 1–5. New South African Tersilochinae: (1–3) *Aneuclis laminosa* sp. n.: (1) propodeum, dorsolateral view, (2) apical part of fore wing, (3) first tergite, lateral view; (4, 5) *A. lanternaria* sp. n.: (4) antennae, lateral view, (5) head, anterior view.

Male. Unknown.

Holotype: ♀ 'South Africa, W. Cape, Constantiaberge, 640m. 34°02.5'S 18°23.5'E, above road to mast overlooking Hout bay', '15–23 February 1994 S. van Noort, Mesic Mountain Fynbos, Malaise trap', 'SAM-HYM-P006183' (SAMC).

Paratypes: SOUTH AFRICA: *Western Cape*: ♀ same data as holotype but 25.i–2.ii.1994 (ZISP); ♀ same locality and collector but in top kloof with forest elements, Malaise trap, 12–17.ix.1993 (SAMC); 3♀ Brandfontein Reserve, 34°46'S:19°52'E, Strandveld, Malaise trap, 16–18.x.1992, S. van Noort (2♀ SAMC, ♀ ZISP); ♀ same data, but sweep (SAMC).

Aneuclis lanternaria sp. n.

Figs 4–7, 10, 11

Etymology: From Latin *lanternarius* (carrying a lantern).

Description:

Female.

Body length 3.3 mm.

Head roundly narrowed behind eyes in dorsal view; temple short, 0.63 times as long as eye width. Flagellum of antenna with 14 segments; all flagellomeres, except apical one, distinctly elongate, mostly 1.4–1.6 times as long as wide (Fig. 4). Upper tooth of mandible longer than lower tooth. Malar space about as long as basal width of mandible. Face and frons granulate. Vertex very finely granulate, matt.

Mesonotum granulate, usually impunctate (indistinctly punctate in one paratype). Notaulus substituted by a short distinct carina. Mesopleuron granulate, usually indistinctly punctate centrally. Sternaulus in anterior part of mesopleuron weakly impressed, more coarsely granulate than the remaining mesopleuron, sometimes also with very shallow wrinkles. Propodeum evenly granulate, impunctate; basal keel 0.4 times as long as apical area; spiracle separated from pleural carina by about 1.5 diameters of spiracle; apical area more or less rounded anteriorly, with a pair of longitudinal carinae reaching transverse carina (Fig. 11).

Fore wing length 2.26 mm. First section of radial vein about as long as width of pterostigma. Metacarp not reaching apex of fore wing. Second recurrent vein interstitial (Fig. 10). Vein 2*rs–m* moderately long (Fig. 10).

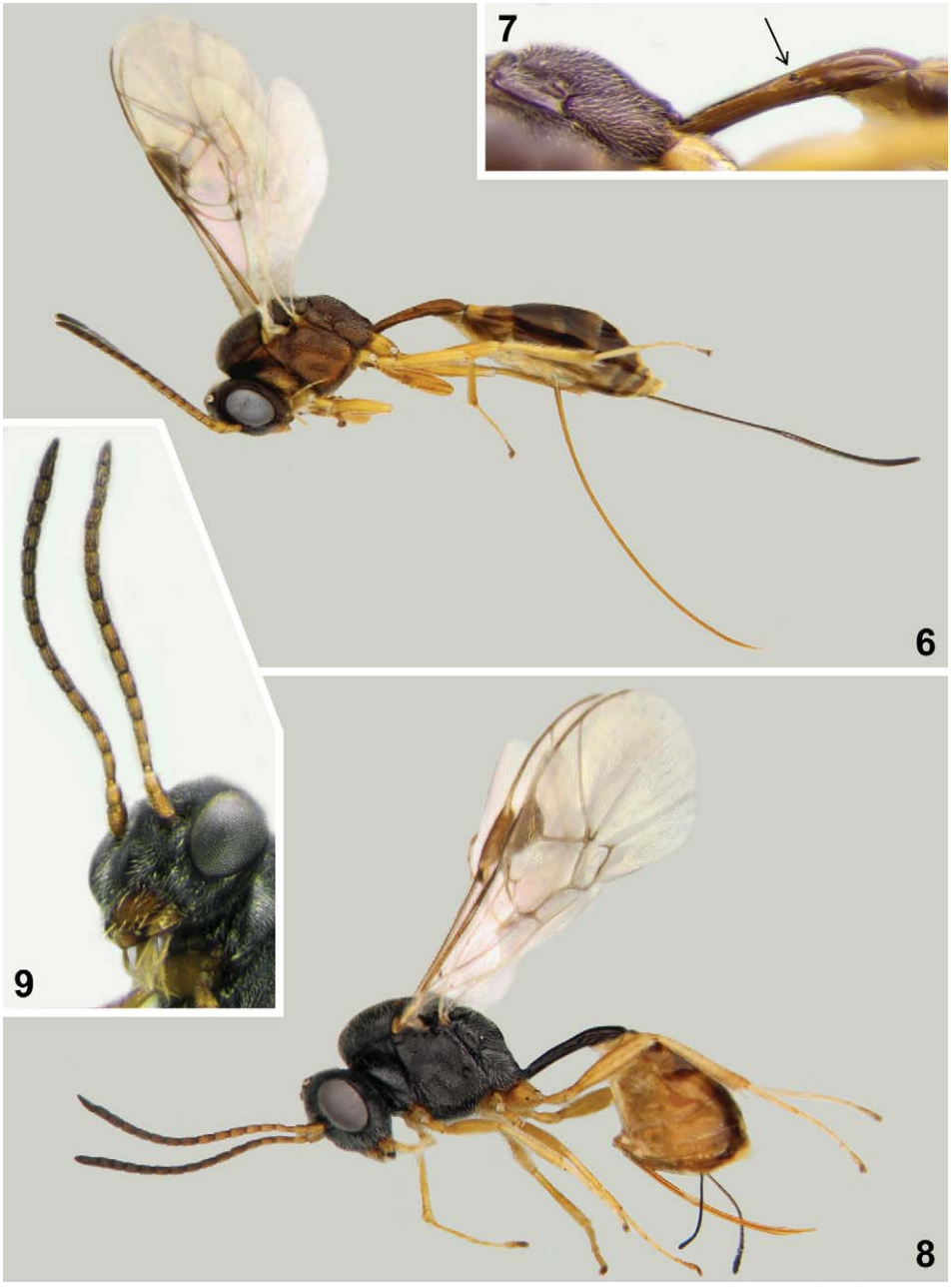
First tergite length 0.66 mm; tergite slender, almost entirely smooth, with petiole slightly striate laterally, with small deep glymma (Fig. 7). Second tergite length 0.28 mm. Thyridia very shallow (sometimes hardly discernible), about 2.5 times as long as wide. Ovipositor long; sheath 2.0 mm, 3.0 times as long as first tergite (Fig. 6).

Body brown to black with brownish hue. Palpi, mandibles (except teeth), clypeus, scape and pedicel of antenna, tegula and legs yellow to yellowish brown. Flagellum usually yellowish basally, evenly darkening towards apex. Pronotum reddish. Pterostigma brown, sometimes with pallid basal, apical and peripheral spots. Metasoma behind first segment usually brown to dark brown, with second tergite yellowish dorsally; sometimes tergites yellowish ventrally.

Male. Unknown.

Holotype: ♀ 'South Africa, W. Cape, Fernkloof Nat. Reserve, Hermanus, Die Mond se Kop, above Voëlklip [34°24'S:19°16'E]', '60 m, 19–20 Feb 1994, S. van Noort, Mesic Mountain Fynbos, Malaise Trap', 'SAM-HYM-P006185' (SAMC).

Paratypes: SOUTH AFRICA: *Western Cape*: ♀ same data as holotype (ZISP); ♀ Brandfontein Reserve, 34°46'S:19°52'E, Strandveld, sweep, 16–18.x.1992, S. van Noort (SAMC); ♀ 'Mossel bay [34°11'S:22°08'E] SAMuseum [South African Museum]', 'R. Turner 29-11-41' (underside of label, both sides contain handwritten illegible text), 'SAM-HYM-P001294', head absent (SAMC).



Figs 6–9. New South African Tersilochinae: (6, 7) *Aneuclis lanternaria* sp. n.: (6) habitus, lateral view, (7) propodeum and first tergite, lateral view; (8, 9) *A. larga* sp. n.: (8) habitus, lateral view; (9) head with antennae, lateral view.

Aneuclis larga sp. n.

Figs 8, 9, 12–14

Etymology: From Latin *largus* (bountiful).

Description:

Female.

Body length 2.8 mm.

Head strongly and rather linearly narrowed behind eyes in dorsal view; temple almost 0.6 times as long as eye width. Flagellum with 14 segments; all flagellomeres distinctly elongate (Fig. 9). Upper tooth of mandible longer than lower tooth. Malar space slightly longer than basal width of mandible. Face and frons granulate, sometimes also finely punctate. Vertex very finely granulate, matt. Temple usually smooth and shining, sometimes finely granulate.

Mesonotum granulate and finely punctate. Notaulus absent or weak. Mesopleuron granulate, sometimes also finely punctate. Sternaulus in anterior part of mesopleuron oblique, moderately impressed and transversely wrinkled. Propodeum entirely granulate, impunctate; basal keel about 0.4 times as long as apical area; spiracle separated from pleural carina by about 2.0 diameters of spiracle; apical area rounded (Fig. 13) or slightly pointed (producing angle about 85°) anteriorly, its longitudinal carinae weak anteriorly, usually reaching transverse carina.

Fore wing length 2.3 mm. First section of radial vein much longer than width of pterostigma. Metacarp not reaching apex of fore wing. Second recurrent vein postfurcal (Fig. 12).

First tergite length 0.68 mm, posterior width 0.18 mm; tergite slender, almost entirely smooth, with petiole slightly striate laterally, without glymma. Second tergite length 0.23 mm. Thyridia about 1.5× as long as wide. Ovipositor short, robust, with more or less distinct roundish tooth before dorsal subapical depression (Fig. 14); sheath 0.67 mm, as long as first tergite or slightly shorter.

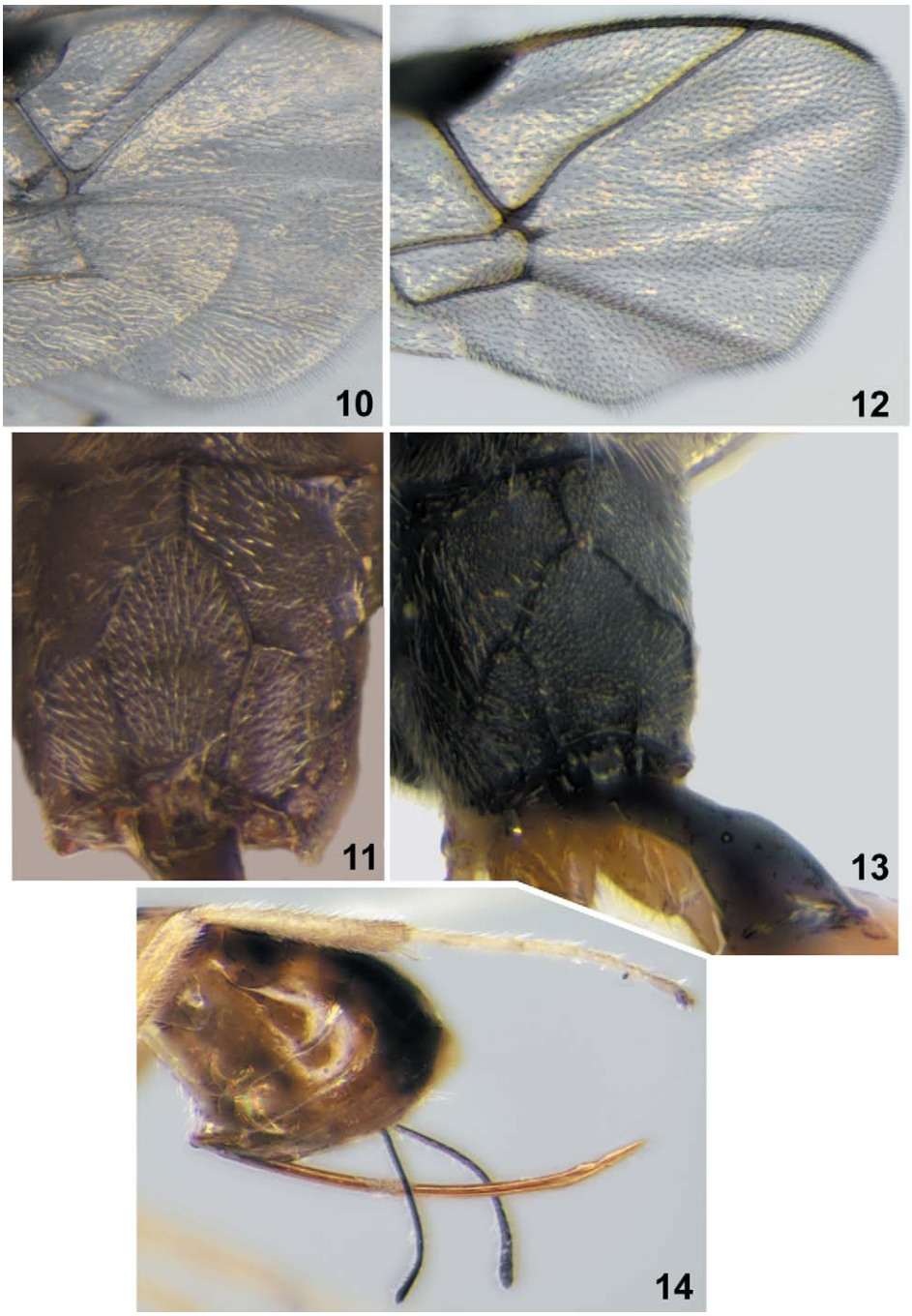
Body primarily black. Palpi, mandibles (except teeth), lower half of clypeus (upper half reddish below to black above), scape and pedicel of antenna (entirely or only ventrally), tegula and legs brownish yellow (rarely hind coxa brown basally). Flagellum usually brownish yellow basally, evenly darkening towards apex, or rarely entirely darkened. Pterostigma brown. Metasoma behind first segment usually brownish yellow ventrally to brown dorsally, or sometimes entirely brown or dark brown.

Male.

Similar to female. Flagellum of antenna with 14 segments. Malar space about as long as basal width of mandible. Sternaulus sometimes very weak.

Holotype: ♀ 'S. AFRICA, Kwazulu-Natal, Hlogoma, (5.95 km 123° SE Underberg) 29°48.326'S 29°33.286'E', '1-4.xii.2001, S van Noort, Malaise trap UN01-DP1-M11. Rye grass pasture on dolerite', 'SAM-HYM-P0024920' (SAMC).

Paratypes: SOUTH AFRICA: *KwaZulu-Natal*: 3♀ same data as holotype but rye grass and kikuyu pastures on dolerite (SAMC). *Northern Cape*: ♀ Kranskloof Farm, Uitkyk Site, 16.4 km 177° S Nieuwoudtville, 31°30.804'S:19°10.793'E, old wheat field on tillite, Malaise trap, 13–16.x.2000, S. van Noort (ZISP). *Eastern Cape*: 2♀ ♂ Schilpad Laagte Farm, 15.4 km 226° SW Kirkwood, 33°31.653'S:25°22.620'E, valley bushveld (non-trashed), Malaise trap, 13–15.ii.2001, S. van Noort (♀ ♂ SAMC, ♀ ZISP); 3♀ 5♂ Februarie Farm, 40.2 km 267° W Kirkwood, 33°33.124'S:25°03.043'E, valley bushveld (goat trashed), Malaise trap, 10–16.ii.2001, S. van Noort (♀ 3♂ SAMC, 2♀ 2♂ ZISP); ♂ same locality, date and collector, but sweep (SAMC). *Western*



Figs 10–14. New South African Tersilochinae: (10, 11) *Aneuclis lanternaria* sp. n.: (10) subapical part of fore wing, (11) propodeum, dorsal view; (12–14) *A. larga* sp. n.: (12) apical part of fore wing, (13) propodeum and first tergite, dorsolateral view, (14) metasoma with ovipositor and hind leg, lateral view.

Cape: ♀ Cape Town, Tokai State Forest, Constantiaberge, above Donkerboskloof, 460 m, 34°02'S:18°23'E, mesic Mountain Fynbos on sandstone, near stream, bracken present, Malaise trap, 27.viii–5.ix.1993, S. van Noort (SAMC). TANZANIA: ♀ Mkomazi Game Reserve, Pangaro Plot, 3°53.61'S:37°46.65'E, open disturbed *Acacia*/*Grewia* bushland, sweep, 23.iv.1996, S. van Noort (SAMC).

Aneuclis lasciva sp. n.

Figs 15–18

Etymology: From Latin *lascivus* (playful, cheerful).

Description:

Female.

Body length 2.86 mm.

Head moderately narrowed behind eyes in dorsal view; temple 0.56 times as long as eye width. Flagellum of antenna with 14 segments; sub-basal flagellomeres about 1.6 times as long as wide, subapical flagellomeres 1.2 times as long as wide (Fig. 15). Upper tooth of mandible longer than lower tooth. Malar space subequal to basal width of mandible. Face and frons granulate. Vertex very finely granulate, matt. Temple smooth and shining.

Mesonotum finely granulate, impunctate. Notaulus substituted by a strong sharp carina about 1.5 times as long as second flagellomere width. Mesopleuron finely granulate, with fine punctures centrally. Sternaulus in anterior part of mesopleuron slightly impressed, with weak transverse wrinkles. Propodeum evenly granulate, impunctate, with short dorsal transverse carina near anterior margin (confining basal keel anteriorly); basal keel mostly distinct, 0.6 times as long as apical area, vanishing posteriorly near transverse carina; spiracle separated from pleural carina by about 2.0 diameters of spiracle; apical area rounded anteriorly (Fig. 17), its longitudinal carinae distinct, reaching transverse carina.

Fore wing length 2.28 mm. First section of radial vein longer than width of pterostigma. Metacarp almost reaching apex of fore wing (Fig. 16). Second recurrent vein interstitial (Fig. 16). Vein 2*rs–m* very short (Fig. 16).

First tergite length 0.62 mm, posterior width 0.2 mm; tergite moderately slender, mostly smooth, with petiole very finely striate laterally, without glymma. Second tergite length 0.27 mm. Thyridia slightly elongate. Ovipositor more strongly upcurved near apex, with weak dorsal subapical depression (Fig. 18); sheath 0.8 mm, 1.3 times as long as first tergite.

Body primarily black. Palpi, mandibles (except teeth), scape and pedicel of antenna, tegula and legs yellow to brownish yellow. Clypeus yellow, darkened in upper part. Flagellum yellowish on basal half, evenly darkening towards apex. Pterostigma brown. Metasoma behind first segment yellow ventrally to brown and blackish dorsally.

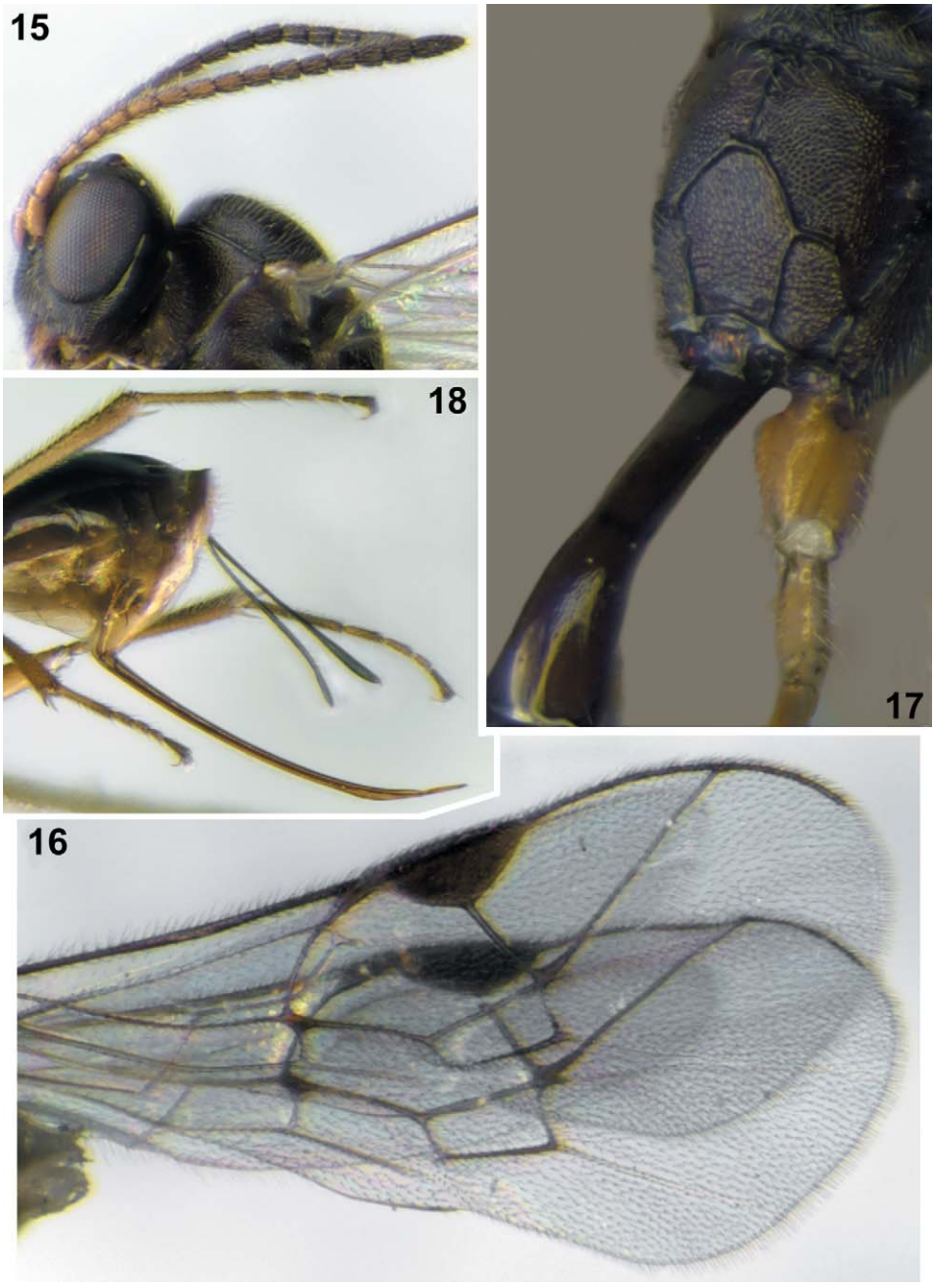
Male. Unknown.

Holotype: ♀ 'South Africa, Kwazulu-Natal, Ramsgate, Butterfly Sanctuary, Malaise trap, 30°53.3'S: 30°20.4'E, 9.08–21.09.2004, M. Mostovski' (SAMC).

Aneuclis lugubris sp. n.

Figs 19–21

Etymology: From Latin *lugubris* (mournful).



Figs 15–18. *Aneuclis lasciva* sp. n. (Tersilochinae): (15) head with antennae and anterior part of mesosoma, lateral view, (16) fore wings, (17) propodeum and first tergite, dorsolateral view, (18) metasoma with ovipositor and apexes of mid and hind legs, lateral view.

Figs 19–24. New South African Tersilochinae: (19–21) *Aneuclis lugubris* sp. n.: (19) hind leg, lateral view, (20) propodeum, dorsal view, (21) ovipositor, lateral view; (22–24) *A. vannoorti* sp. n.: (22) head with antenna, lateral view, (23) propodeum and first tergite, dorsolateral view, (24) ovipositor, lateral view.

Description:

Female.

Body length 2.56 mm.

Head roundly narrowed behind eyes in dorsal view; temple 0.66 times as long as eye width. Flagellum of antenna with 13 or 14 segments; all flagellomeres elongate. Upper tooth of mandible longer than lower tooth. Malar space subequal to or somewhat longer than basal width of mandible. Face and frons finely granulate and very finely punctate (sometimes punctures indistinct), often almost smooth and shining. Vertex very finely granulate to almost smooth, matt. Temple smooth and shining.

Mesonotum finely granulate and finely punctate (sometimes indistinctly). Notaulus usually more or less developed. Mesopleuron finely granulate, finely punctate centrally, sometimes almost smooth and shining. Sternaulus in anterior part of mesopleuron weakly impressed, as a rule with transverse wrinkles. Propodeum evenly granulate, impunctate; basal keel half as long as apical area (Fig. 20); spiracle separated from pleural carina by about 2.0 diameters of spiracle; apical area pointed anteriorly (Fig. 20) or sometimes rounded, its longitudinal carinae reaching or not reaching transverse carina.

Fore wing length 2.14 mm. First section of radial vein longer than width of pterostigma. Metacarp short, ending far short of apex of fore wing. Second recurrent vein postfurcal.

First tergite length 0.6 mm, posterior width 0.14 mm; tergite very slender, entirely smooth, without glymma. Second tergite length 0.27 mm. Thyridia shallow, 2.0–3.0 times as long as wide. Ovipositor evenly upcurved, with weak dorsal subapical depression (Fig. 21); sheath 1.3 mm, about twice as long as first tergite.

Primarily brown to dark brown species, with mesosoma sometimes black. Palpi and antenna fuscous or black; scape and pedicel sometimes slightly yellowish or brownish. Mandibles (except teeth), lower clypeus and tegula yellow to yellow-brown. Pterostigma brown to pale brown, usually with pallid marks basally and apically. Legs mostly brown to dark brown (Fig. 19); fore and mid femora widely yellowish or yellowish brown apically; hind femur with narrow pallid mark apically; tibiae more or less pale apically and sometimes also basally.

Male. Similar to female. Flagellum of antenna with 14 segments.

Holotype: ♀ 'S. Africa, N. Cape, Glen Lyon farm, Horn Site (4.38 km 153° SSE Nieuwoudtville) 31°24.268'S 19°08.788'E', '*Medicago* pastures on tillite, 11–14 October 2000, S van Noort, Malaise trap NW00-TM1-M19', 'SAM-HYM-P0024930' (SAMC).

Paratypes: SOUTH AFRICA: *Northern Cape*: ♀ same data as holotype (SAMC); 2♀ 5♂ West Driefontein farm, 13.1 km 106° ESE Nieuwoudtville, 31°22.178'S:19°15.064'E, Succulent Karoo on shales, Malaise trap, 13–16.x.2000, S. van Noort (♀ 4♂ SAMC, ♀ ♂ ZISP); 4♀ Oorlogskloof farm, Beacon Site, 6.65 km 158° SSE Nieuwoudtville, 31°25.307'S:19°09.590'E, natural veg. on dolerite, sweep, 9.x.2000, S. van Noort (SAMC); 2♀ same data, but 9–12.x.2000 (ZISP); ♀ Willemsrivier farm, Tienkie Wheat North Site, 2.06 km 337° NNW Nieuwoudtville, 31°21.831'S:19°05.897'E, old wheat field on tillite, Malaise trap, 9–12.x.2000, S. van Noort (SAMC); 2♀ Willemsrivier farm, Tienkie Wheat South Site, 1.72 km 334° NNW Nieuwoudtville, 31°21.990'S:19°06.011'E, old wheat field on tillite, Malaise trap, 12–15.x.2000, S. van Noort (SAMC). *Eastern Cape*: ♀ Februarie Farm, 39.9 km 268° W Kirkwood, 33°32.813'S:25°03.091'E, valley bushveld (non-trashed), Malaise trap, 10–12.ii.2001, S. van Noort (SAMC).

Aneuclis vannoorti sp. n.

Figs 22–24

Etymology: Named in honour of the collector of the type material, Dr S. van Noort (SAMC).

Description:

Female.

Body length 3.1 mm.

Head strongly and moderately roundly narrowed behind eyes in dorsal view; temple 0.57 times as long as eye width. Antenna with 14-segmented flagellum; all flagellomeres distinctly elongate (Fig. 22). Upper tooth of mandible longer than lower tooth. Malar space subequal to or slightly longer than basal width of mandible (distinctly shorter in female from Dikbome). Face and frons granulate. Vertex finely granulate, matt. Temple finely granulate and matt to smooth and shining.

Mesonotum granulate and indistinctly punctate. Notaulus substituted by a short, strong carina. Mesopleuron granulate, sometimes almost smooth and finely punctate centrally. Sternaulus in anterior part of mesopleuron oblique, slightly impressed, usually with more or less developed transverse wrinkles. Propodeum entirely granulate, impunctate; basal keel very short, 0.24–0.29 times as long as apical area; spiracle separated from pleural carina by about 2.0 diameters of spiracle; apical area strongly acute anteriorly (Fig. 23), its longitudinal carinae weaker anteriorly, reaching or not reaching transverse carina.

Fore wing length 2.33 mm. First section of radial vein much longer than width of pterostigma. Metacarp not reaching apex of fore wing. Second recurrent vein postfurcal.

First tergite length 0.68 mm, posterior width 0.19 mm; tergite slender, smooth, usually with small glymma. Second tergite length 0.28 mm. Thyridia 1.5–2.0 times as long as wide, sometimes very shallow. Ovipositor short (Fig. 24); sheath 1.28 mm, almost 1.9 times as long as first tergite.

Body primarily black. Palpi, mandibles (except teeth), lower 2/3 of clypeus (upper third reddish blackish), scape and pedicel of antenna, tegula and legs (apical tarsomeres more or less infuscate) brownish yellow. Flagellum yellowish basally, evenly darkening towards apex. Pterostigma brown, with pallid marks basally and apically. Metasoma with segment 1 brown to black with brownish hue, following segments brownish yellow ventrally to brown or dark brown dorsally.

Male.

Similar to female. Flagellum of antenna with 14 segments. Malar space distinctly shorter than basal width of mandible.

Holotype: ♀ 'SOUTH AFRICA, E. Cape: ♀ Februarie Farm (40.2 km 267° W Kirkwood), 33°33.124'S: 25°03.043'E', '10–12 Feb 2001, S van Noort, Malaise trap, VB01-RIN-M22, Valley Bushveld (non-trashed)', 'SAM-HYM-P0024899' (SAMC).

Paratypes: SOUTH AFRICA: *Eastern Cape*: 1♀ 3♂ same locality and collector but 14–16.ii.2001, goat trashed (2♂ SAMC, ♀ ♂ ZISP); ♀ same locality and collector as holotype but 12–14.ii.2001 (SAMC). *Western Cape*: 1♀ 'Dikbome Merweville Koup [32°40'S:21°31'E] C.P.', 'H. Zinn Jan. 1953.' [underside of label] (SAMC).

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A review of Afrotropical *Sisyrnodytes* Loew, 1856 (Diptera: Asilidae: Stenopogoninae)

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ABSTRACT

The genus *Sisyrnodytes* Loew, 1856 is reviewed and the Afrotropical species revised. A key for the separation of species is presented and the fauna is discussed with respect to available distributional and biological data. The following Afrotropical species are described as new: *aethes* (South Africa), *ausensis* (Namibia), *dasykylon* (South Africa, Namibia), *oligotrichus* (Namibia), *xeromyia* (Botswana, Namibia). The following previously described Afrotropical species are considered valid: *apicalis* Oldroyd, 1957; *aterrimus* Engel, 1929; *brevis* (Macquart, 1838); *curtus* (Wiedemann, 1819); *irwini* Oldroyd, 1974; *major* Adams, 1905; *nilicola* (Rondani, 1850); *niveipilosus* Ricardo, 1925; *subater* Oldroyd, 1957; *vestitus* Oldroyd, 1974. The following new synonymies are established: *S. defusus* Oldroyd, 1974 and *S. diplocus* Oldroyd, 1974 = *S. brevis*; *S. luscinius* (Walker, 1849) = *S. curtus*; *S. erebus* Oldroyd, 1957 = *S. major*. A neotype is designated for *S. brevis* (Macquart, 1838), and lectotypes are designated for *S. major*; *S. floccus* Loew, 1856; *S. niveipilosus*. One species has been removed from *Sisyrnodytes*: *Acnephalum sericeus* (Oldroyd, 1974), comb. n.

KEY WORDS: Afrotropics, Asilidae, *Sisyrnodytes*, taxonomy, new species, new synonymy, distribution, identification key, nomenclatural acts.

INTRODUCTION

Members of the asilid genus *Sisyrnodytes* Loew, 1856 are small to medium-sized flies. Their somewhat dorsoventrally compressed, broad bodies give them a bee-like appearance (Figs 1, 2). Many species inhabit dry, sandy or rocky terrain where they usually perch on stones or on open sandy ground. Very little is known about their biology. Species of *Sisyrnodytes* have frequently been confused with those of *Acnephalum* Macquart, 1838, and this confusion, coupled with the fact that many unidentified specimens were to be found in southern African natural heritage institutions, prompted this study. Much of the taxonomic confusion that has characterised these two genera has been a consequence of two main factors. Firstly the reduction in size of the terminal abdominal segments and consequential concealment of the terminalia, coupled with the frequent presence of long setae, makes the study of genitalia difficult (this certainly accounts for the many incorrectly sexed specimens encountered in this study). Secondly, considerable morphological variation exists. This variation is evident in both individuals belonging to any single local population as well as between populations over geographical ranges. In addition there is variation in the form of sexual dimorphism.

As in many other asilid genera, the adequate diagnosis of species is heavily reliant on an appreciation of the morphology of male genitalia. Unfortunately some previous studies have been undertaken without the benefit of information derived from a careful study of genitalia. While this study has incorporated information derived from male genitalia, the identification of some specimens may still be in doubt as it is impractical to dissect and macerate the terminalia of every specimen. Fortunately the shape of the hypandrium is a useful mean of separating species, and in most instances it is possible to see this

organ without removing the terminalia—although it may sometimes be necessary to remove some of the setae that hide the hypandrium from view.

Sisyrnodytes is primarily a genus of the Afrotropical Region. A few species are, however, known from the Palaearctic, and others apparently confined to that region remain undescribed. The following brief taxonomic history of the genus incorporates all known species, Afrotropical and Palaearctic, although this revision is restricted to the Afrotropical fauna. Names given are as cited by authors, generic names are provided when species were not listed as belonging to *Sisyrnodytes*.

Wiedemann (1819) – Described *Dasypogon curtus* from 'Prom. bon. sp.' (i.e. Cape of Good Hope, South Africa).

Wiedemann (1821) – Redescribed *Dasypogon curtus*.

Wiedemann (1828) – Listed *Dasypogon curtus* 'Vom Kap' (i.e. from the Cape).

Macquart (1838) – Described *Acnephalum breve* (now *brevis*) 'Du Cap' (i.e. from the Cape).

Walker (1849) – Described *Dasypogon luscinius* from South Africa.

Rondani (1850) – Described *Acnephalum nilicola* from Egypt.

Walker (1854) – Listed *brevis* and *curtus* in *Acnephalum* which he considered a group within *Dasypogon*.

Loew (1856) – Described the genus *Sisyrnodytes* for his new species *floccus* from Egypt.

Loew (1860) – Listed *Sisyrnodytes floccus* from 'Aegypten' (= Egypt) and *brevis* from 'Cap' (i.e. The Cape, South Africa).

Schiner (1866) – Transferred *curtus* from *Acnephalum* to *Sisyrnodytes*.

Walker (1871) – Described *Dasypogon contrarius* from Mount Sinai (Egypt).

Loew (1873) – Commented on the fact that Walker's *contrarius* was the same as his *floccus*.

Wulp (1899) – Recorded a single female specimen of *brevis* from Aden (Yemen). He listed *floccus* and *contrarius* as synonyms.

Becker *et. al.* (1903) – Catalogued Palaearctic *Sisyrnodytes* listing *brevis* (with *contrarius* and *floccus* as synonyms) and *nilicola*.

Adams (1905) – Described *major* from Salisbury (= Harare, Zimbabwe).

Bezzi (1906) – Described *niger* collected from 'Anseba, Halibaret, Tellini' (Eritrea).

Kertész (1909) – Catalogued the genus listing *brevis* (with *contrarius* and *floccus* as synonyms), *curtus*, *major*, *niger* and *nilicola*.

Engel (1925) – Recorded *brevis* from Egypt and the Cape Colony (South Africa).

Ricardo (1925) – Described *niveipilosus* from Bulawayo (Zimbabwe).

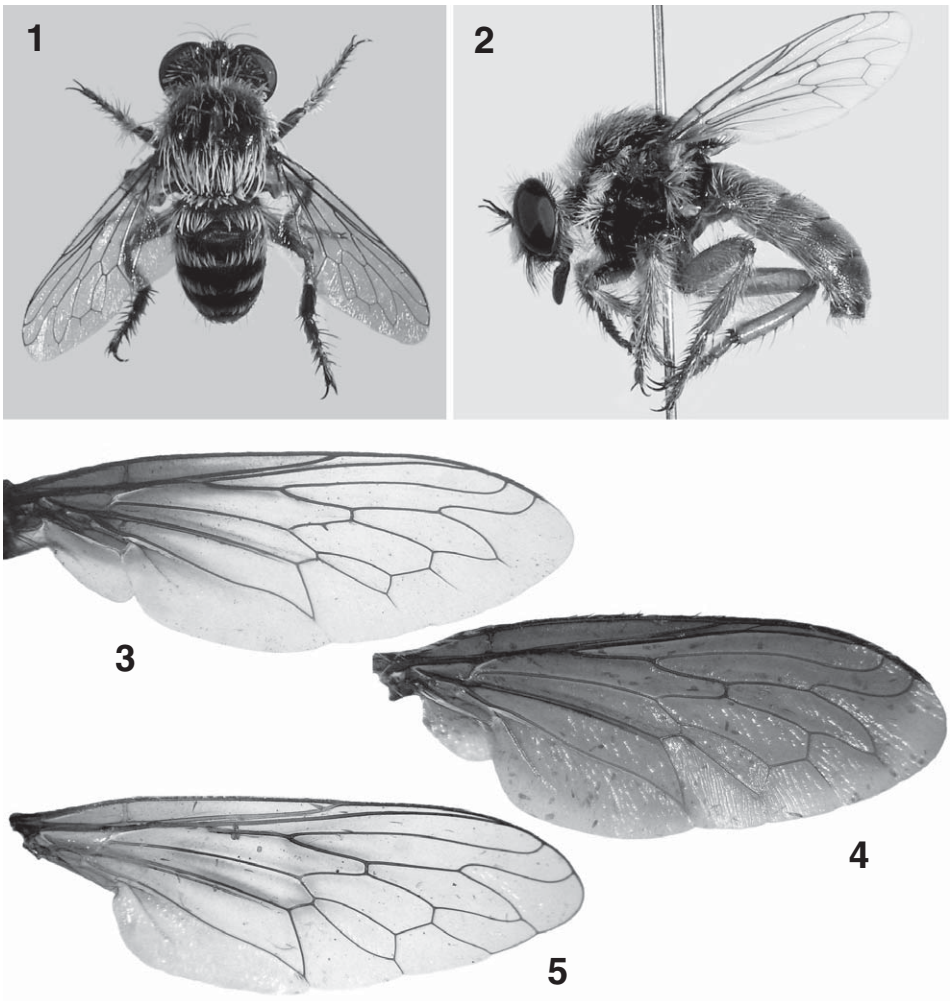
Engel (1929) – Described *aterrimus* from Bulawayo (Zimbabwe).

Séguy (1930) – Described *leucophæatus* from Beni Berberi (Morocco).

Séguy (1931) – Described *disjunctus* from Mozambique and *rufus* from Algeria.

Efflatoun (1937) – Monographed Egyptian Asilidae including a generic description and a redescription of *brevis* (listing *contrarius*, *floccus* and *nilicola* as synonyms) which was reported as widely distributed in the country.

Oldroyd (1957) – Revised *Sisyrnodytes* providing a generic description, a key to the Afrotropical species and descriptions or redescriptions of ten species, three being new to science (*apicalis*, *erebus*, *subater*), the others being *aterrimus*, *brevis*, *curtus*, *luscinius*, *major*, *nilicola* and *niveipilosus*.



Figs 1–5. *Sisyrnodytes* species: (1) *S. brevis* (Macquart, 1838), dorsal view of a Gonnemanskraal ♂; (2) S. curtus (Wiedemann, 1819), lateral view of Knersvlakte ♀; (3, 4) *S. major* Adams, 1905, variation in wing staining: (3) Nguruma ♂; (4) Azare paratype ♂; (5) *S. aethes* sp. n., wing venation of Meiringspoort paratype ♀.

Hull (1962) – In his world review of asilid genera provided a detailed description and listed the following species: Palaearctic: *brevis* (with *contrarius*, *floccus* and *nilicola* as synonyms), *leucophaetus* and *rufus*. Ethiopian (= Afrotropical): *aterrimus*, *curtus*, *disjunctus*, *major*, *niger* and *niveipilosus*, providing illustrations of *brevis* and *niveipilosus*.

Oldroyd (1974) – In reviewing the southern African asilid fauna he briefly discussed *Sisyrnodytes* providing a key to 13 species, including eight previously described species (*apicalis*, *aterrimus*, *brevis*, *curtus*, *luscinius*, *major*, *niveipilosus*, *subater*) and five new ones (*defusus*, *diplocus*, *irwini*, *sericeus*, *vestitus*).

Oldroyd (1980) – Catalogued Afrotropical species listing *apicalis*, *aterrimus*, *brevis*, *curtus*, *defusus*, *diplocus*, *erebus*, *irwini*, *luscinius*, *major* (with *niger* and *disjunctus* as synonyms), *nilicola* (with *floccus*, *contrarius* and *rufus* as synonyms), *niveipilosus*, *sericeus*, *subater* and *vestitus*.

Theodor (1980) – In revising the Asilidae of Palestine provided a short generic description together with a key to and detailed descriptions of the two species known from the area (i.e. *nilicola* and his new species *engeddensis* from Israel).

Lehr (1988) – Catalogued the Palaearctic representatives of the genus listing *brevis*, *leucophaetus* and *nilicola* (with *floccus*, *contrarius* and *rufus* as synonyms).

Londt (1994) – Provided a key to the genera of Afrotropical Stenopogoninae that included *Sisyrnodytes*.

Londt (1999) – Produced an updated key to Afrotropical stenopogonine genera that included *Sisyrnodytes*.

Dikow (2009) – Revised the subfamilial classification of Asilidae following a phylogenetic study. The Willistonininae was given subfamily rank and *Sisyrnodytes* included within it.

At the commencement of this study there were therefore 15 Afrotropical species (i.e. those catalogued by Oldroyd (1980)), and four Palaearctic species (i.e. the three catalogued by Lehr (1988) and *engeddensis* Theodor, 1980, that was somehow overlooked by Lehr). Two of the species (*brevis* (Macquart, 1838) and *nilicola* (Rondani, 1850)), have been listed for both regions, which means that there were 17 valid species names at the start of this review. With the description of five new species, the synonymy of four established names, and the transfer of one species to *Acnephalum*, the number of Afrotropical species remains at 15.

MATERIAL AND METHODS

Specimens

Material used in this study is housed in the institutions listed below. The abbreviations supplied are used when listing specimens. The curators that kindly assisted me are named in brackets following the name of the respective institution.

AMGS – Albany Museum, Grahamstown, South Africa (A. Kirk-Spriggs).
BMNH – The Natural History Museum, London, UK (E. McAlister).
MNHN – Muséum National d'Histoire Naturelle, Paris, France (C. Daugeron).
NHMW – Naturhistorisches Museum Wien, Wien, Austria (P. Sehnal).
NMSA – Natal Museum, Pietermaritzburg, South Africa (M. Mostovski).
OXUM – 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).
SEMC – Kansas University Entomological Collections, Lawrence, Kansas, USA (J. Thomas).
ZMHB – Museum für Naturkunde, Humboldt Universität zu Berlin, Germany (J. Ziegler).
ZSMC – Zoologische Staatssammlung, München, Germany (B. Stock).

Label data

A standard format has been employed when recording label information. As material is not abundant all label data is reproduced as it appears on labels. For multiple labels each label is demarcated by the use of single inverted commas while each line of data is separated by a spaced slash (/). Data that appear on the reverse side of a label are preceded by a '~' symbol. In some instances the colour of a label is given in square brackets. In instances where a series of specimens have identical label data, except for the date of collection, repetition is avoided by merely listing the dates and indicating the number of specimens involved. Square brackets are used when useful information or comment not found on labels is deemed necessary. In this regard, coordinates are usually provided when these, or a quarter-degree grid reference, do not appear on labels. Because of the difficulty of establishing exactly where some localities are (e.g. 146 km E. Swakopmund), coordinates provided in brackets are for the named place preceding the provision of this additional information. The use of question marks usually indicates unknown or questionable information. Specimens are arranged in geographical order according to latitude and within countries (alphabetically ordered).

Descriptive passages

Morphological terminology usually follows McAlpine (1981). A brief generic diagnosis is provided. If a fuller description is required, that of Hull (1962) can be consulted. Species descriptions are brief and confined largely to characteristics that are considered helpful in the separation of species. As there is significant variation in coloration, colours provided should be interpreted with some latitude.

It should be noted that in order to adequately view and study the retracted male genitalia, these need to be excised, softened through maceration and physically extruded. This was done by inserting a pin into the opening created when the terminalia were excised with fine scissors. The genitalia were effectively exposed by carefully positioning the point of a pin and dragging the terminalia over it. On occasion the pin point was inserted into the basal part of the aedeagus and this explains why this organ is sometimes illustrated in an almost completely extruded position. Unfortunately, this method of extrusion may cause some soft, macerated sclerites and associated membranes to buckle (e.g. the highly reduced weakly sclerotised epandrium). However, most of the organs providing good diagnostic characters (e.g. the hypandrium and gonocoxites) are usually not adversely affected.

Final illustrations were prepared from pencil drawings without employing any graphic software for their manipulation and do not depict setae as these are not considered to have any great diagnostic value. Measurements were taken as follows: Eye and face widths were measured viewing the head anteriorly and at the level of greatest width. Wing length is from humeral crossvein to tip, while breadth is measured at the broadest level of the wing.

TAXONOMY

Genus *Sisyrnodytes* Loew, 1856

Sisyrnodytes: Loew 1856: 40. Type species: *Sisyrnodytes floccus* Loew, 1856 [= *Acnephalum nilicola* Rondani, 1850], by monotypy.

Diagnosis: A distinctive bee-like member of the subfamily Stenopogoninae. Characterised by the possession of asetose anatergites, minute or no pulvilli, and a costal vein

that usually terminates before the wing tip (Figs 3, 4). A single species has the costal vein extending beyond the wing tip and terminating where M_2 reaches the wing margin (Fig. 5). In addition the wing membrane lacks microtrichiae entirely and, as a consequence of the shortened costal vein, veins R_4+M_1, M_2, M_3+CuA_1 and CuA_2+A_1 frequently fail to reach the wing margin (Figs 3, 4). Male genitalia are withdrawn between distal terga and sterna, while the epandrium is invariably small and poorly developed.

Sisyrnodytes aethes sp. n.

Figs 5–7, 44

Etymology: From Greek *aethes* (unusual, strange). Refers to the unusual wing venation that represents a condition intermediate between that found in *Acnephalum* and that characteristic of all other species of *Sisyrnodytes*.

Description:

Male.

Head: Dark red-brown to black with yellow, white and pale orange setae. Antennae: Orange except for slightly paler tip of style. Scape and pedicel pale yellow-white setose. Major ventral setae of pedicel project beyond level achieved by postpedicel. Basal element of style long (twice as long as broad). Eye to face width ratio 2.7:1. Mystax moderately long, yellow-white. Frons and vertex yellow-white setose. Laterally situated frontal setae not extending below antennal sockets. Occipital setae white, postoculars orange dorsally. Palps and proboscis dark red-brown, white setose.

Thorax: Dark red-brown to black. Pronotum white, pale yellow and orange setose. Mesonotum entirely pale yellow setose, but asetose centrally (probably through abrasion). Scutellum apruinose with poorly defined transverse groove; disc asetose, apical setae numerous (difficult to count) pale yellowish. Pleural setae long, glistening whitish. Katepimeron strongly setose, katatergals long, shafts more or less smooth (i.e. not wavy). Legs: Orange, mainly white and pale yellow setose (there are some dark red-brown to black setae distally on tibiae and ventrally on tarsi). Claws longish, dark red-brown to black; empodia short yellowish; pulvilli minute to absent. Wings *c*. 7.8 (tip missing) × 3.5 mm; C white setose basally; membrane transparent but slightly pale yellowish stained anterobasally. Venation unusual with C not terminating at the wing tip but continues around it, ending slightly beyond where M_2 reaches wing margin (as in Fig. 5). In addition veins M_3+CuA_1 and CuA_2+A_1 reach wing margin. Haltere brown-yellow with reddish knob.

Abdomen: Dark red-brown, glistening white setose; setae long laterally and along posterior margins of terga.

Genitalia (Figs 6, 7): Epandrium greatly reduced and simple in structure, proctiger extending well beyond it. Gonocoxite with external lobe tapering to blunt tip, internal lobe with slightly inflated distal tip. Gonostylus shorter than internal lobe of gonocoxite and simple in structure. Hypandrium flattish, triangular in ventral view, with medial lobe extending almost as far as tip of internal lobe of gonocoxite. Aedeagus fairly slender with small, blunt tip.

Female: Agrees with male except as follows. Generally more yellow and orange setose. Prothorax mostly orange setose; mesonotum anteriorly orange and posteriorly yellow

setose. Apical scutellar setae not as numerous (*c*. 30). Legs orange-brown. Wing (Fig. 5) length 6.6 mm; venation as in male, but C ends where M_2 reaches wing margin (not slightly beyond that point as in male). Abdominal setae shorter.

Holotype: ♂ SOUTH AFRICA: *Northern Cape*: 'Soebatsfon- / tein [30°07'S:17°35'E] 13–14.11 [xi]' [19]33 / G. van Son' (NMSA). The holotype is in fair condition, somewhat greasy, right antenna broken off beyond pedicel, left wing broken off at midlength.

Paratype: SOUTH AFRICA: *Western Cape*: 1♀ 'Sth Africa: Cape Prov / Meiringspoort 3323CA / 12.xii.1979 Londt / & B. Stuckenberg Rocky / hillside & stream edge' (NMSA).

Distribution, phenology and biology: Recorded only from two fairly widely separated localities in the winter-rainfall region of South Africa (Fig. 44). Adults active in November and December (Table 1). The female paratype was collected on sandy ground near a stream flowing through the Meiringspoort and was found together with *brevis*.

Similar species: This is a distinctive species, differing from congeners in having costal vein continuing around wing tip and terminating where M_2 reaches wing margin.

Sisyrnodytes apicalis Oldroyd, 1957

Figs 8, 9, 42

Sisyrnodytes apicalis: Oldroyd 1957: 82; 1974: 73; 1980: 368 (catalogue).

Redescription:

Male (based on holotype in excellent condition; left prothoracic tarsus, left mesothoracic tarsomere 5, and terminal part of right prothoracic tarsomere 5 broken off).

Head: Dark red-brown to black, with black, white and pale brownish setae. Antennae: Dark brown except for tip of style which is yellowish. Scape and pedicel mostly black setose (a few pale brown setae dorsally on pedicel). Major ventral setae of pedicel project beyond level achieved by postpedicel. Basal element of style short (slightly longer than broad). Eye to face width ratio 2.5:1. Mystax shortish, black except for small group of white setae dorsally. Frons and vertex white setose except for *c*. 4 long black ocellar setae. Laterally situated frontal setae not extending below antennal sockets. Occipital setae mostly black, postoculars mixed white and yellowish. Palps and proboscis black setose (tip of proboscis has white setae).

Thorax: Dark red-brown to black. Pronotum white, brown and dark red-brown setose. Mesonotum entirely setose except for narrow paramedial strips, sutural and postsutural spots. Lateral macrosetae black, other setae mostly mixed white and pale brownish orange, but there are small clusters of uniformly white or black setae situated mainly anteriorly. Scutellum apruinose with poorly defined transverse groove (has a crinkled appearance); disc asetose, apical setae numerous black, yellowish and white (black setae constitute a posterior row, are best developed and number *c*. 40). Pleural setae mostly black except for some white and yellowish setae dorsally on anepisternum. Katepimeron black setose, katatergals black, long, shafts more or less smooth. Legs: Dark red-brown, mainly black setose (there are some small white and yellowish setae on pro- and mesothoracic legs). Claws longish, dark red-brown; empodia short yellowish (most appear broken); pulvilli minute to absent. Wings 5.9×2.5 mm; C white setose basally; membrane pale brownish stained except for distal third of wing. Haltere dark red-brown.

Abdomen: Dark red-brown, black setose except for posterior parts of T1–3 which are mostly white setose.

Genitalia: Not dissected, but visible structures appear to conform to dissected and illustrated genitalia of a male from Strandforntein (Figs 8, 9). Epandrium greatly reduced and simple in structure, proctiger (cerci) extending well beyond it. Gonocoxite with external lobe tapering to obliquely pointed tip, internal lobe dorsoventrally compressed. Gonostylus longer than internal lobe of gonocoxite, slender and with curved distal end. Hypandrium flattish, triangular in ventral view, with medial lobe extending as far as tip of internal lobe of gonocoxite and with a broadly rounded distal end. Aedeagus fairly robust with an obliquely pointed tip.

Female: Similar to male, but have more white setae (for example, antennal setae mixed white, dark red-brown and pale brown; mystax more extensively white in dorsal region; ocellar setae white; pleural setae more extensively white; legs more extensively white setose).

Variation: Wing length 4.6–6.6 mm. The male from Strandfontein (near type locality) agrees well with the holotype as does the Namibian male, although there are small differences in the latter (e.g. some mesonotal macrosetae (*spal* & *pal*) are pale yellowish).

Holotype (examined): ♂ SOUTH AFRICA: *Western Cape*: 'Holo- / type' [circular with red rim], 'Cape Town, / Milnerton. [33°52'S:18°29'E] / Feb. 1926', 'S. Africa. / R.E. Turner. / Brit. Mus. / 1926–119.', '*Sisyrnodytes* / *apicalis* Oldroyd / det. H. Oldroyd 1957 / Holotype' (BMNH). The specimen is double mounted on a strip of cellulose and a little green verdigris is present above and below the specimen.

Other specimens examined: NAMIBIA: 1♂ 'Namibia 22.iv.1983 / 146km E. Swakopmund [22°41'S:14°32'E] / Open savannah / Stuckenberg & Londt' (NMSA). SOUTH AFRICA: 1♀ 'Strandfontein [34°05'S:18°33'E] / C.P.' ~ 'Mus. Exp. / Feb. 1949' (SAMC); 1♂ 5♀ 'Strandfontein / March 1950 / Zinn, Hesse' (SAMC).

Distribution, phenology and biology: Recorded from two localities on the sandy 'Cape Flats' near Cape Town, Milnerton (type locality) and Strandfontein, but also recorded some distance away from Swakopmund (Namibia) (Fig. 42). Collected in February, March and April (Table 1). While no ecological data is recorded on labels localities have sandy coastal dunes in common and so it is likely that the species inhabits this environment.

Similar species: This species is similar to *aterrimus*, *major* and *vestitus*.

Sisyrnodytes aterrimus Engel, 1929

Figs 10–12, 40

Sisyrnodytes aterrimus: Engel 1929: 170; Oldroyd 1957: 82–83 (figs 4, 5 ♂ genitalia); 1974: 73; 1980: 368 (catalogue).

Redescription:

Male (based on holotype in excellent condition, slightly dusty).

Head: Dark red-brown to blackish, blackish setose. Antennae: Dark orange-brown except for tip of style which is pale yellowish. Scape and pedicel blackish setose. Major ventral setae of pedicel shortish, failing to project beyond level achieved by postpedicel. Basal element of style short (shorter than broad). Eye to face width ratio 2.5:1. Mystax shortish, black. Frons and vertex blackish setose. Laterally situated frontal setae not extending below antennal sockets. Occipital and postocular setae blackish. Palps and proboscis black setose.

Thorax: Dark red-brown to black. Pronotum black setose. Mesonotum entirely black setose except for few white setae corresponding in position to anterior acrostichals and asetose narrow paramedial strips, sutural and postsutural spots. Scutellum apruinose with poorly defined transverse groove (has crinkled appearance), disc asetose, apical setae blackish, difficult to count (*c*. 20). Pleural setae dark red-brown to black, katatergals long, shafts more or less smooth. Legs: Red-brown, black setose. Claws blackish; empodia short yellowish, pulvilli minute to absent. Wings 3.7×1.5 mm, C black setose basally; membrane transparent. Haltere dark red-brown.

Abdomen: Dark red-brown, blackish setose, setae generally tiny except along lateral margins of terga.

Genitalia: Not dissected, but visible structures appear to conform to dissected and illustrated genitalia of the paratype ♂ (Figs 10–12). Epandrium greatly reduced and simple in structure, proctiger extending well beyond it. Gonocoxite with external lobe tapering to blunt tip and with ventral flange, internal lobe with forked distal end. Gonostylus slender, distinctly curved subapically, projecting beyond level attained by internal lobe of gonocoxite. Hypandrium flattish, almost oval in ventral view, proximal end only slightly broader than distal end. Aedeagus fairly robust with blunt tip.

Female: Similar to males except wings are weakly stained basally. Staining extends along most of the veins.

Variation: Wing length ♂ 3.7–5.3 mm, ♀ 3.4–6.1 mm. The fairly large sample from Zomba was measured (except for 2♂ 1♀ with wings missing) to give an indication of size range at a single locality: ♂ 3.8–5.3 mm ($\overline{x}$=4.4 mm, n=16), ♀ 4.2–6.1 mm ($\overline{x}$=5.0 mm, n=8). Females on average bigger than males. The holotype is more extensively blackish setose when compared with all other males. Most males have some white setae in the following places – dorsal part of mystax, frons and vertex, postocular region, prothorax, anterior and lateral (few) parts of mesonotum, posterior margins of T1–3 mediolaterally (not medially or laterally but in-between). Sexual dimorphism in setal coloration is strongly evident in as much as the entire head, in males (except for palpi and proboscis) is white setose, prothorax is mostly white and yellow setose (few dark red-brown setae), mesonotum extensively yellow and white setose (except for a few dark red-brown setae), legs extensively white setose except for macrosetae which are blackish, all abdominal terga have white setose posterior margins.

Type specimens examined: ZIMBABWE: ♂ (holotype) 'Bulawayo [20°09'S:28°35'E] / Rhodesia / 10.vi.1923 / R. Stevenson' [poorly handwritten label], '*Sisyrnodytes* / *aterrimus* / Engel / Holotype No: 12' [red ink on white], '*Sisyrnodytes* / *aterrimus* / n. sp. / Dr. E. O. Engel det.', '*Sisyrnodytes* / *aterrimus* / Type Engel' [orange] (NMSA); 1♂ (paratype) 'Bulawayo / 10.vi.1923 / R. Stevenson' [printed], '*Sisyrnodytes* / *aterrimus* / n. sp. / Dr. E. O. Engel det.' (NMSA). Notes: The holotype is double mounted on a strip of card and a little green verdigris is present above and below the specimen. Engel (1929) called the two ♂ specimens studied by him the 'type and cotype' respectively. As one of the specimens carries an old orange 'type' label I accept this specimen as the holotype; the other must therefore be considered a paratype. While the types were originally deposited in the Transvaal Museum, Pretoria, their Diptera collection was transferred in its entirety to the Natal Museum during the early 1970s.

Other material examined (all BMNH unless stated otherwise): MALAWI: 1♂ 'Nyasaland / Valley of N. Rukuru [River, 09°53'S:33°56'E] / Karonga Dist. / 2,000 to 4,000 ft. / 15–18 July, 1910 / S.A. Neave'; 1♀ 'Nyasaland / N.W. shore of / Lake Nyasa / nr. Karonga [09°56'S:33°56'E]. / vii.1910 / S.A. Neave'; 1♀ 'N.W. shore of L. Nyasa. / fm. Florence Bay [Chitimba, 10°36'S:34°12'E] to Karonga. / 30 June 6 July 1910, 1,650 ft. / S.A. Neave'; 9♂ 1♀ 'Nyasaland / Lingadzi [Forest Reserve, 13°58'S:33°48'E] / Nr. Domira Bay. / 1700 ft 30.6.15 / Dr. W.A. Lamborn'; 1♀ 'Nyasaland / Protectorate / abt. 6 miles S.E. of / Lake Pamalombe [L. Malombe, 14°38'S:35°12'E]. in flowers of the "sausage / tree". in company with / bees

(*Trigona* spp.). / 10.viii.1911. / R. Newstead. / 1912.188'; 18♂ 9♀ 'H. S. Stannus / Zomba [15°23'S:35°20'E] / Nyasaland'; 1♀ 'Nyasaland / Namurawa [?] / 1915 / c. Mason'. ZAMBIA: 1♂ 6♀ 'N.W. Rhodesia / Chilanga [09°14'S:32°27'E] / 4.iv, 12 13 14 19 22.vii, 16.viii.13 [♂] [each specimen with different date] / R.C. Wood / On rocky path'; 1♀ 'N.E. Rhodesia: en route from / Luangwa to Petauke [14°15'S:31°20'E]. / Sept. 14–17.1910. / S.A. Neave'; 1♀ 'N.E. Rhodesia / Luangwa to / Petauke / 14–17 Sep. 1910 / S.A. Neave'; 1♀ 'N.E. Rhodesia / Karonga [? Kalonga, 14°36'S:31°15'E] / July 13, 1910 / S.A. Neave'; 1♂ 3♀ 'N.E. Rhodesia / Upper Luangwa R. [15°36'S:30°25'E] / 27 July 13 August 1910 / S.A. Neave'; 1♂ 1♀ N.E. Rhodesia: / Upr. Luangwa Riv. / Junctions of Luwumbu / & Mwailesi Rivers. / 27.vii.–13.viii.1910 / S.A. Neave'. ZIMBABWE: 2♂ 'Sanyati [River, 17°30'S:29°23'E] Valley / S. Rhodesia. / Sept. – Dec., 1925. / R H R Stevenson' (NMSA); 1♂ 'Victoria Falls [17°56'S:25°50'E] / S. Rhodesia / 29.7.1922 / Rhodesia / Museum'.

Distribution, phenology and biology: Recorded from Malawi, Zambia and Zimbabwe (Fig. 40). This distribution overlaps with that of *major*, but as of yet the species have not been recorded together at the same locality. Adults are active from June through September (Table 1), as cited by Oldroyd (1957), although one record exists for April (this may be an error in labelling—perhaps 'iv' should read 'vi'). The species therefore flies during winter. Biological data are minimal – one label states that the specimen was collected in flowers of the sausage tree (*Kigelia africana*) and was found in the company of bees of the genus *Trigona*. The significance of this observation is unknown. Some specimens were collected on rocky pathways. One female from Zomba is pinned with a heteropteran of the family Lygaeidae.

Similar species: This species is similar to *apicalis*, *major* and *vestitus*.

Sisyrnodytes ausensis sp. n.

Figs 13, 14, 41

Sisyrnodytes brevis (misidentification of material from Aus): Oldroyd 1957: 84; 1974: 73.

Etymology: The name is derived from the type locality of Aus.

Description:

Male (based on holotype in good condition).

Head: Dark red-brown to black, white setose. Antennae: Dark red brown except for distal half of postpedicel and tip of style which are pale brownish. Scape and pedicel white setose. Major ventral setae of pedicel do not project beyond level achieved by postpedicel (are broken). Basal element of style short (slightly longer than broad). Eye to face width ratio 1.7:1. Mystax longish, white. Frons and vertex white setose. Laterally situated frontal setae extending below antennal sockets. Occipital and postocular setae white. Palps and proboscis dark red-brown, palpi dark red-brown setose, proboscis white setose.

Thorax: Dark red-brown to black. Pronotum white setose. Mesonotum entirely setose except for narrow paramedial strips, sutural and postsutural spots. Lateral macrosetae white (*npl*) and yellow (*spal* & *pal*); other setae white (anteriorly) and glistening yellowish (posteriorly). Scutellum apruinose with poorly defined transverse groove (has a crinkled appearance); disc asetose, *c*. 20 yellow apical setae. Pleural setae white and yellowish. Anepisternum white setose, katepimeron asetose, katatergals pale yellow, long, shafts more or less smooth. Legs: Dark red-brown, mainly white setose (there are some black setae at distal tips of tibiae and ventrally on tarsi). Claws longish, dark red-brown; empodia short yellowish; pulvilli minute to absent. Wings 4.4×3.1 mm; C yellow

setose basally; membrane transparent but brownish stained proximally (staining extends to end of costal cell and is weaker posteriorly). Haltere yellow with pale brown stalk.

Abdomen: Dark red-brown, terga with tiny setae medially (appearing asetose), and moderately long white setose laterally, Sterna long wavy yellowish setose.

Genitalia (Figs 13, 14): Epandrium reduced and simple in structure, proctiger extending well beyond it. Gonocoxite with external lobe tapering to narrowly-rounded tip, internal lobe longish, with slightly bilobed distal end. Gonostylus slightly longer than internal lobe of gonocoxite and simple in structure. Hypandrium flattish, sub triangular in ventral view, narrowing a little before midlength, medial lobe with almost parallel sides extending well beyond outer lobe of gonocoxite, but falling short of the distance attained by internal lobe. Aedeagus fairly slender with small, blunt tip. (Note: The genitalia were attached to a card pinned under the specimen and appeared to have been cleared (probably by Oldroyd). This card was removed, placed in warm KOH (which caused the genitalia to become detached from the card) and stored in a vial containing an alcohol/glycerine mixture after being illustrated.)

Female: Similar to male but slightly larger and have far more yellow to pale orange setae. One female has the head entirely yellowish setose except for some ventral occipitals; pronotum yellow-white setose; mesonotum entirely yellow setose; legs yellow setose except for the dark red-brown setae as in male; abdomen with yellow setae laterally (some extending along posterior margins of terga). The other female is almost entirely pale orange setose.

Variation: Wing length ♂ *c*. 4.4–4.7 mm, ♀ *c*. 5.3 mm. (Three specimens have the tips of their wings damaged making measurements approximate, while one female has badly damaged wings that were not measured.)

Holotype: ♂ NAMIBIA: 'Aus. [26°40'S:16°16'E] / Dec. 1929', 'S.W. Africa. / R.E. Turner. / Brit. Mus. / 1930-113' (BMNH). The specimen is pinned laterally, double mounted on a strip of cellulose and had a little green verdigris (cleaned) above and below.

Paratypes: 3♂ 3♀ same data as holotype (BMNH).

Distribution, phenology and biology: Known only from the type locality (Fig. 41) and collected in December (Table 1).

Similar species: This species is similar to *brevis* and *oligotrichus*.

Sisyrnodytes brevis (Macquart, 1838)

Figs 1, 15, 16, 41

Acnephalum breve: Macquart 1838: 52 (tab. iv, fig. 3 head, lateral aspect).
Dasypogon (*Acnephalum*) *brevis*: Walker 1854: 458.
Sisyrnodytes brevis: Loew 1860: 72; Oldroyd 1957: 83–84 (figs 2, 3 ♂ genitalia); Hull 1962: 191 (fig. 106 antenna); Oldroyd 1974: 73; 1980: 368 (catalogue).
Sisyrnodytes defusus Oldroyd, 1974: 74; 1980: 368 (catalogue). **Syn. n.**
Sisyrnodytes diplocus Oldroyd, 1974: 74; 1980: 368 (catalogue). **Syn. n.**

Redescription:

Male (in the absence of the *brevis* holotype, the description is based on the *defusus* holotype ♂ (now considered the neotype of *brevis*); condition: fair, left wing broken off at base and missing, right wing broken off just beyond humeral crossvein—all cells missing except for cell a1; mesonotum and scutellum appear somewhat abraded and a

number of setae are missing; the specimen is double mounted on a strip of cellulose and pinned laterally).

Head: Dark red-brown to black, setae white except for a few brownish orange postoculars. Antennae: Dark red brown except for tip of style which is yellowish. Scape and pedicel white setose. Major ventral setae of pedicel project to a similar level achieved by postpedicel. Basal element of style short (slightly longer than broad). Eye to face width ratio 2.0:1. Mystax shortish, white, weakly developed dorsally (leaving a shiny apruinose, asetose strip between the eyes below antennal sockets). Frons and vertex white setose. Laterally situated frontal setae not extending below antennal sockets. Occipital setae mostly white, postoculars brownish orange. Palps and proboscis white setose.

Thorax: Dark red-brown to black, white setose. Prothorax white setose. Mesonotum entirely white setose (except for abraded areas). Scutellum apruinose with moderately defined transverse groove; disc asetose, *c*. 12–14 white apical setae in two groups (absent medially). Pleural setae white. Katepimeron asetose; katatergals long, white, shafts more or less smooth. Legs: Dark red-brown, mainly white setose except for few strong black setae at distal tips of tibiae and ventrally on tarsi. Claws longish, black; empodia longish, yellowish; pulvilli minute to absent. Wings broken off and missing (see information under variation). Haltere yellow-brown.

Abdomen: Dark red-brown; white setose, but poorly so over medial parts of T1–5. T1–6 with longish, pale glistening white setae laterally especially in more distally situated segments.

Genitalia: Not dissected, but visible structures appear to conform to dissected and illustrated genitalia of a male from the Karoo Botanic Gardens, Worcester (Figs 15, 16). Epandrium greatly reduced and simple in structure, proctiger extending well beyond it. Gonocoxite with external lobe tapering to fairly sharp tip, internal lobe robust, with characteristic shape in lateral view (a useful feature when viewing undissected males). Gonostylus somewhat shorter than internal lobe of gonocoxite and simple in structure. Hypandrium flattish, sub-triangular in ventral view, with long medial lobe extending beyond tip of external lobe of gonocoxite. Medial lobe, in ventral view, with lateral wing-like projections basally (there is some variation in the degree of development of these). Aedeagus slender with blunt tip.

Female. Similar to male but commonly has more yellow and orange setation.

Variation: A topotypic male specimen identified as *defusus* has wings measuring 3.5×1.5 mm. This is a fairly variable species; males are generally smaller than females with measured wing lengths of ♂ 2.6–3.7 mm, ♀ 2.9–4.7 mm respectively. The *defusus* type, and other material from Worcester, are extensively white setose (except for some orange setae on occiput and prothoracic tibiae). Males from other localities may, however, be more extensively yellow or orange setose, the areas most commonly affected include the antennae, frons, occiput, pronotum, anterior parts of mesonotum and legs.

Neotype designation: Although Oldroyd (1957) states '*Holotype* in Muséum national d'Histoire naturelle, Paris.', the specimen is unfortunately no longer there. In complying with the qualifying conditions for the designation of a neotype, I provide the following information as required by Article 75 of the International Code of Zoological Nomenclature (ICZN 1999: 84–85).

Clarification of taxonomic status: *S. brevis*, originally described from 'The Cape', is a long-established species that is now believed to be confined to South Africa. There has been considerable confusion surrounding its identity and various scientists have recorded it from localities north of the equator in both Palaearctic Africa and beyond. Although these records are now believed to relate to *nilicola*, this, and the other Palaearctic species, urgently need revision. There is therefore a need to clarify the status of the species and to provide some taxonomic stability. The designation of a neotype provides a standard reference specimen.

Characters differentiating brevis *from other species*: The description provided, together with illustrations of the male terminalia and the key serve well to define this species and to separate it from all other Afrotropical species.

Recognition of the neotype specimen: The specimen is clearly labelled as neotype.

Reasons for believing that the holotype is lost or destroyed: The holotype used to form part of the Macquart's collection housed in the MNHN. This was confirmed by the curator of this collection, Christophe Daugeron, who also informed me that the specimen is no longer in the collection and that there is no record of it having been sent to anyone on loan. In addition, a colleague, Prof. Denis Brothers, personally examined the relevant drawer and confirmed that the specimen is now missing.

Evidence of consistency with what is known about the holotype: Although Macquart's original description, in Latin and French, is brief, the neotype conforms well to it.

Evidence that the neotype comes from the same region as the holotype: Pierre Antoine Delalande (1787–1823) collected the material used by Macquart. While it is not possible to ascertain precisely where the material was found it is known that Delalande, who spent some time in Cape Town and the Algoa Bay area, made three journeys into the interior between November 1818 and September 1820. He could have collected the *brevis* type(s) on any of these trips. Although Worcester, about 100 km east of Cape Town, is the other side of a mountainous area, it is one of the closest localities to Cape Town from which *brevis* is positively recorded. Worcester is also the type locality of *defusus*, which is now considered a synonym of *brevis*. I therefore conclude that Worcester is an appropriate type locality.

Repository of neotype: The neotype is housed in the BMNH, London as indicated below in the list of types studied.

Type specimens examined: SOUTH AFRICA: *Western Cape*: ♂ neotype of *brevis* (*defusus* holotype), 'Holo- / type' [circular with red rim], 'Cape Prov., / Worcester. [33°39'S:19°26'E] / 1.1934', 'S. Africa. / R.E. Turner. / Brit. Mus. / 1934–106.', '*Sisyrnodytes* / *defusus*. sp. n. / det. H. Oldroyd 1971 / Holotype' (BMNH); ♀ holotype (*diplocus*), 'Malmesbury [33°27'S:18°44'E] / Kapland / Dr. Brauns. / 5.xii.1928 [?]', Collection / Transvaal / Museum' [pale green], '*Sisyrnodytes* ♂ / *diplocus* sp. n. / det. H. Oldroyd 1971 / Holotype' (NMSA). *Eastern Cape*: 1♀ paratype (*diplocus*), 'Wit River Valley / Cambria area / Patensie Dist. / 6.12.67 3324DA / B&P Stuckenberg', '*Sisrynodytes* ♀ / *diplocus* sp. n. / det. H. Oldroyd 1971 / Paratype' (NMSA). Note: The *diplocus* holotype, originally deposited in the Transvaal Museum, is now in the Natal Museum and is a female, contrary to Oldroyd's (1974) statement.

Type locality: I here designate the type locality as South Africa, Western Cape, Worcester [33°39'S:19°26'E].

Other material examined: SOUTH AFRICA: 1♂ 1♀ 'Modder Riv / Brandfort [28°42'S:26°28'E] Dist / OFS' ~ 'Mus. Staff / Nov 1939' (SAMC); 3♂ 5♀ 'Sth Africa: Cape Prov / 2km NE of Carnarvon / 14.xi.1986 3022CC / Londt & Quickelberge / 1350m Flat scrubland' (NMSA); 4♂ 4♀ 'Kamieskroon [30°12'S:17°56'E] / Namaqualand' ~ 'Museum Staff / Nov. 1936' (SAMC); 1♀ 'Aliwal North, [30°42'S:26°42'E] / Cape Province. / Dec. 1922', 'S. Africa. / R.E. Turner. / Brit. Mus. / 1923-45' (BMNH); 1♂ 1♀ 'Colesberg [30°44'S: 25°06'E] / C.P.' ~ 'Mus. Staff / Nov. 1939' (SAMC); 1♀ 'South Africa: N Cape / 1 km S Carnarvon 1260m

/ Appie van Heerden Nat. / Reserve 14.xi.2008 / 30°58.83'S:22°07.39'E / J&A Londt Karoo scrub' (NMSA); 1♀ 'Sth Africa: Cape Prov / Gifberg Pass summit / 16.xi.1986 3118DB / Londt & Quickelberge / 690m Rocky macchia' (NMSA); 1♀ 'Sth Africa: Cape Prov / 17km NW Touwsrivier / 20.xi.1986 3119BD / Londt & Quickelberge / 900m Sand and tall / bush Military area' (NMSA); 1♂ 1♀ 'Knersvlakte [31°15'S:18°45'E] / Namaqualand' ~ 'Mus. Expd. / Oct. 1950' (SAMC); 1♂ 1♀ 'Knersvlakte / Mus. Staff. / Oct. 1939' (SAMC); 1♂ 1♀ 'Van Rhynsdorp [Vanrhynsdorp, 31°37'S:18°44'E] / SA Museum' ~ 'Mus. Staff / Nov. 1936' (SAMC); 3♂ 4♀ 'S Africa: Cape #35 / 23km N of Middelpos / 31°44'S:20°14'E 1170m / Date: 29.xi.1990 / Whittington & Londt / At Kookfontein River' (NMSA); 2♂ 2♀ 'Sth Africa: Cape Prov / Longhill Nature Res. / 5km N of Queenstown / 31°52'S:26°53'E 1350m / J & H Londt *Acacia* / savannah 3.xii.1989' (NMSA); 1♀ 'Sth Africa: Cape Prov / 10km S of Sutherland / Swaarweerberg 3220BC / Londt & Quickelberge / 19.xi.1986 1600m / Rocks Woody macchia' (NMSA); 1♀ 'Sth Africa: Cape Prov / 44km N Matjiesfontein / 20.xi.1986 3220DC / Londt & Quickelberge / 1050m Tall renoster- / bos on rocky slope' (NMSA); 1♀ 'Sth Africa: Cape Prov / Molteno Pass 33km NW / Beaufort West 3222AB / 11.xi.1986 Londt & / Quickelberge Flowers / along roadside 1450m' (NMSA); 1♂ 2♀ 'Bulshoek [32°01'S:18°47'E] Clw [Clanwilliam], / S.A.M. 12-56' (SAMC); 1♂ 'Bulhoek [Bulshoek] / Klaver – Clanw.' ~ 'Mus. Expd. / Oct. 1950' (SAMC); 2♀ 'South Africa: N Cape / Fish River bridge 23 km / SE Middelpos 1145 m / 32°01.42'S:20°24.41'E / 18.xi.2008 J&A Londt / Sandy riverine scrub area' (NMSA); 1♂ 1♀ 'S Africa: Cape #33 / 23km SE of Middelpos / 32°01'S:20°25'E 1200m / Date: 28.xi.1990 / Whittington & Londt / Banks of Visrivier' (NMSA); 1♂ 3♀ 'S Africa: Eastern Cape / 3km E Cradock 956m / 32°10'02"S 25°40'09"E / 29.x.2004 J&A Londt / *Acacia* scrubland with / many wild flowers' (NMSA); 1♀ 'South Africa: N Cape / Renoster River 18 km N / Sutherland 1320 m / 32°15.21'S:20°41.67'E / 19-20.xi.2008 J&A Londt / Rocky ridge Stream edge' (NMSA); 2♂ 1♀ 'S Africa: Cape #26 / 18km N of Sutherland / 32°16'S:20°41'E 1350m / Date: 26.xi.1990 / Londt & Whittington / Renosterrivier area' (NMSA); 1♀ 'South Africa, Cape Province / Brakkloof Farm / Grahamstown [32°18'S:26°32'E] / 30.i.1982 / P.M.C. Croeser' (NMSA); 7♂ 2♀ 'South Africa / Grahamstown / 19.xii.71 / D.J. Greathead' (BMNH); 1♀ 'Merweville [32°40'S:21°31'E] / Dist. C.P.' ~ 'H. Zinn / Jan – Feb. 1947' (SAMC); 1♀ 'Sth Africa: Cape Prov / Klein Visrivier – ca. / 10km W Somerset East / 32°44'S: 23°30'E 800m / J & H Londt 6.xii.1989 / Rocky ridge & stream' (NMSA); 1♀ 'South Africa: W Cape / Kagga Kamma Nat. Res. / 32°45.15'S:19°34.21'E / 22-23.xi.2008 J&A Londt / 1075 m Sandy area with / tall fynbos near houses' (NMSA); 10♂ 3♀ 'Sth Africa: W Cape / Gonnemanskraal N of / Jacobsbaai JGH Londt / 32°57'14"S 17°53'07"E / 21–26.xii.2002 0–10m / Dune sand & vegetation' (NMSA); 2♀ 'Sth Africa: Cape Prov / Op die berg 3319AB / 21.xi.1986 J Londt / 1070m Sandy area / short grass & shrubs' (NMSA); 1♂ 6♀ 'S. Africa: Cape #1 / Karoo Botanic Gardens / Worcester 3319Cb / 30.xii.1982–6.i.1983 / Malaise trap / Coll: R.M. Miller' (NMSA); 1♂ 1♀ 'Sth Africa: Cape Prov / Diepkloof CA 20km E / De Rust 3322BD / 12.xii.1979 J. Londt / & B. Stuckenberg Dry / rocky hillside & stream' (NMSA); 2♀ 'Sth Africa: Cape Prov / Meiringspoort 3323CA / 12.xii.1979 Londt / & B. Stuckenberg Rocky / hillside & stream edge' (NMSA); 3♂ 5♀ 'Sth Africa: Cape Prov / Uniondale 3323CA / 12.xii.1979 J. Londt & / B. Stuckenberg Steep / hillside macchia' (NMSA; SANC 1♂ 1♀); 1♀ 'So. Africa: Cape Prov. / New Years Dam 3326AC / Alicedale 5.xi.1978 / R. Miller & J. Londt / dam margin' (NMSA); 1♂ 'Cape Province / Clifton [33°11'S: 26°24'E], 18km NW / of Grahamstown / 20.xi.1990 / F.W. & S.K. Gess' (AMGS); 1♂ 'Laingsberg [33°12'S: 20°51'E] / Koup Siding / SA Museum' ~ 'Mus. Staff / Nov 1939' (SAMC); 2♂ 1♀ 'S Africa: Cape #5 / 15km NW Grahamstown / 33°12'S:26°24'E 500m / Date: 20.xi.1990 / Whittington & Londt / Clifton farm hillside' (NMSA); 1♀ 'Gouph / Lainsburg [Laingsberg, 33°12'S:20°51'E] Div.' ~ 'Mus. Staff / Feb. 1938' (SAMC); 2♂ 'S Africa: Eastern Cape / Ecca Pass Nature Res. / 33°13'07"S 26°37'38"E / 21.x.2004 J&A Londt / 457m N slope 20km NE / Grahamstown, Thicket' (NMSA); 3♂ 5♀ 'S Africa: Cape #11 / 32km E of Willowmore / 33°15'S:23°48'E 650m / Date: 22.xi.1990 / Whittington & Londt / Dry scrub road margin' (NMSA); 1♀ 'Witzenberg Vall. [Pass, 33°16'S:19°13'E] / 3,500 ft. / Ceres District, / Cape Province. / 21–23.xii.1920' (BMNH); 1♀ 'S Africa: Cape #23 / 19km SE of Laingsburg / 33°17'S:20°57'E 700m / Date: 25.xi.1990 / Whittington & Londt / near Floriskraal dam' (NMSA); 4♂ 3♀ 'Capland / Willowmor [Willowmore, 33°17'S:23°30'E] / 11 [xi] 1907 [1♂ 2♀] 28 11 1906 [1♂] Nov 1914 [1♀] / Dr. Brauns' (NMSA; ZSMC 2♂); 1♂ 4♀ 'S Africa: Eastern Cape / Grahamstown 643m / 33°17'52"S 26°30'44"E / 24.x.2004 J&A Londt / Rocky *Acacia* grassland / Somerset Heights area' (NMSA); 2♀ 'Cape Province / Strowan [33°18'S: 26°28'E] / Grahamstown / 27.xi.1968 [1♀] 11.xii.1968 [1♀] / F.W. Gess' (AMGS); 1♂ 2♀ 'S Africa: Eastern Cape / 2km E Alicedale 310m / 33°19'07"S 26°06'12"E / 23.x.2004 J&A Londt / Dry rocky hillside with / succulent vegetation' (NMSA); 1♂ 7♀ 'S Africa: Cape #7 / 6km E of Alicedale / 33°19'S:26°07'E 600m / Date: 21.xi.1990 / Whittington & Londt / New Years Dam area' (NMSA); 4♂ 5♀ 'South Africa / Cape Province / Coombs [33°19'S:26°49'E] / 25.x.1959 / D.J. Greathead' (BMNH); 1♀ '8m. NE / Touws R. [Touwsrivier, 33°20'S:20°02'E]' ~ 'H. Zinn / Jan – Feb. 1947' (SAMC); 9♂ 6♀ 'S Africa: Cape #6 / 2km S of Grahamstown / 33°20'S:26°31'E 800m / Date: 20.xi.1990 / Londt & Whittington / Dassie Krantz Forest' (NMSA); 2♀ 'S Africa: Cape #12 / 16km SW of Willowmore / 33°23'S:23°23'E 900m / Date: 22.xi.1990 / Londt & Whittington / Ghwarriepoort River 2' (NMSA); 1♂ 'S Africa: Eastern Cape / Thomas Baines Nat Res / 33°24'40"S 26°30'07"E / 23.x.2004 J&A Londt / 289m *Grewia* & *Acacia* / thicket. Settler's Dam'

(NMSA); 2♀ 'Matroosberg Sta. [Railway Station 33°26'S:19°50'E]' ~ '12.1962. / S.A.M.' (SAMC); 3♀ 'Upper Sources / Olifants River [33°41'S:21°43'E] / Ceres C.P.' ~ 'Mus. Exp. / Dec. 1949' (SAMC); 1♂ 'South Africa: W Cape / Vrolijkheid Nature Reserve / 33°54'55"S 19°53'37"E / 20.x.2005 J.G.H. Londt / 234m Dry succulent / rocky hillside Rooikat trail' (NMSA).

Distribution, phenology and biology: Although fairly widely distributed (Fig. 41), *brevis* is a South African endemic. All previous reports of the species from countries much further north are erroneous, referring mainly to *nilicola* which superficially resembles *brevis*. Oldroyd (1957, 1974) reports the species from southern Namibia, but his material, from Aus, represents another species described earlier in this paper as *ausensis*. Adults are active during summer (October–February) (Table 1) and inhabit both winter and summer rainfall regions. Label data indicate that dry, sandy and often rocky environments are favoured. Many specimens were found on rocky hillside slopes while others were collected in *Acacia* savannah areas. Personal experience suggests that individuals rest on exposed sand or rocks, darting after small insect prey flying close to the ground. There are three prey records in the Natal Museum database, all from Clifton Farm near Grahamstown. Two males were captured with Hymenoptera (Cynipidae) while one female was found feeding on a small Coleopteran (probably Chrysomelidae). Personal experience indicates that populations may on occasion be locally fairly high.

Comments: It is clear that Oldroyd, who revised the genus in 1957 and again added to our knowledge in 1974, did not have a good concept of *brevis*. Evidence for this was gleaned from the following analysis. In 1957 (p. 84) he lists material as follows: 'South West Africa: Aus; Neels Poort. Cape Province: Ceres District, Witzenberg Valley, 3500 feet; Worcester.' and in 1974 (p. 73) the following list appears 'S.W. Africa: Aus; Neels Post. Cape Province: Ceres Dt.; Aliwal North (R. E. Turner); Wit River Valley, Cambria Area (Stuckenberg); Kimberley (Greathead)'. My study of Oldroyd's material from the places listed above reveals the following:

Aus – These specimens are distinctive and now constitute the types of a new species *ausensis*.

Neels Poort or Neels Post – Both names are incorrect. Labels actually show the locality as Nels Poort (more commonly written as Nelspoort, the Afrikaans equivalent). This locality is not in S.W. Africa (i.e. Namibia) as labels state, but in the Western Cape Province of South Africa). These specimens are now considered to belonging to the new species *dasykylon*.

Witzenberg Valley / Ceres Dt. – The single female from this locality is considered correctly identified as *brevis*.

Worcester – The material Oldroyd listed under *brevis* in 1957 was used to erect his new species, *defusus*, in 1974. *S. defusus* is now considered a synonym of *brevis*.

Aliwal North – The single female from this locality is considered correctly identified as *brevis*.

Wit River Valley – While one female is a paratype of *diplocus* (= *brevis*), another, with identical label data, belongs to *subater*.

Kimberley – These specimens, listed both under *brevis* and *subater*, correctly belong to *subater*.

The fact that Oldroyd had relatively few specimens at his disposal, most of which were females, must have contributed to his apparent lack of appreciation of *brevis*.

Similar species: This species is similar to *ausensis* and *oligotrichus*.

Sisyrnodytes curtus (Wiedemann, 1819)

Figs 2, 17, 18, 43

Dasypogon curtus: Wiedemann 1819: 6; 1821: 229; 1828: 409.
Dasypogon (*Acnephalum*) *curtus*: Walker 1854: 458.
Acnephalum curtus: Loew 1860: 72.
Sisyrnodytes curtus: Schiner 1866: 680; Oldroyd 1957: 84–85; 1974: 74; 1980: 368 (catalogue).
Dasypogon luscinius Walker, 1849: 360. **Syn. n.**
Sisyrnodytes luscinius: Oldroyd 1957: 85–86; 1974: 72; 1980: 368 (catalogue).

Redescription:

Female (based on holotype in fair condition, left mesothoracic leg broken off beyond femur, left metathoracic leg missing terminal four tarsomeres, thorax badly cracked dorsoventrally on left side with resulting damage to pleura, mesonotum and scutellum, left haltere missing it's knob).

Head: Dark red-brown to black, white, pale yellow and red-brown setose. Antennae: Red-brown except for tip of style which is yellowish. Scape and pedicel mostly pale yellowish setose. Major ventral setae of pedicel not projecting beyond level achieved by postpedicel (setae probably damaged). Basal element of style short (about as long as broad). Eye to face width ratio 1.6:1. Mystax moderately developed, predominantly white except for ventral setae which are dark red-brown. Frons and vertex white setose. Laterally situated frontal setae not extending below antennal sockets. Occipital setae white, postoculars mostly dark red-brown. Palps dark red-brown setose, proboscis white setose.

Thorax: Dark red-brown. Pronotum white setose. Mesonotum entirely setose except for narrow paramedial strips, sutural and postsutural spots. Lateral macrosetae red-brown (*npl* & *sal*) and pale yellow (*pal*), other setae mostly white (there are a few pale brownish ones). Scutellum apruinose, somewhat inflated, with poorly defined transverse groove; disc asetose, 16 apical setae ranging from orange-brown (laterally) to yellowish (medially). Pleural setae white. Katepimeron asetose, katatergals long, shafts more or less smooth proximally, wavy distally. Legs: Red-brown, meso- and metathoracic femora orange anteroventrally, metathoracic tibiae mostly orange. Legs mainly white setose, but there are black setae terminally on tibiae and ventrally on tarsi. Claws longish, dark red-brown; empodia short yellowish, pulvilli moderately developed (longer than empodia and about one-third length of claws). Wings 5.2×2.2 mm, C white setose basally; membrane weakly pale orange stained basally. Haltere brown-yellow.

Abdomen: Red-brown; terga partly yellow-white setose (these setae mainly laterally situated, but do extend along posterior margins for a short distance).

Male: Similar to female.

Genitalia: The terminalia of a male from '7 mi. N. Vanrhynsdorp' were excised, macerated and illustrated (Figs 17, 18). Epandrium reduced and simple in structure, about twice as long as broad in lateral view. Proctiger fairly short. Gonocoxite with suboval external lobe (in lateral view). Internal lobe fairly robust with small inwardly directed hooked tip. Gonostylus short, simple in structure. Hypandrium fairly robust, suboval in ventral view, constricted at about midlength (in ventral view). Aedeagus fairly robust, blunt tipped.

Variation: Wing length ♂ 3.1–5.2 mm, ♀ 3.1–6.2 mm. A fairly variable species with respect to general body and setal coloration. For example, antennae and mystax may be

entirely white setose and occiput may lack yellowish macrosetae. Major ventral setae of pedicel usually extend beyond level attained by postpedicel. Leg coloration varies from orange through to dark red-brown, metathoracic legs often paler than others. Wing staining also varies slightly in both intensity and extent. Abdominal coloration variable from almost entirely orange (parts of T1 always dark red-brown) to almost entirely red-brown (lateral parts of terga invariably paler than medial parts).

Holotype (examined): ♀ SOUTH AFRICA: *Western Cape*: 'Cap b. sp. [Cape of Good Hope]', '*Sisyrnod*. (*Dasy*). / *curtus* / Coll. Winthem', 'Type' [red] (NHMW). Note: Wiedemann (1821) recorded the species from 'Prom. bon. sp' giving the gender as male and the repository as 'Mus. Westerm. et n.'. Oldroyd (1957) states '*Holotype* in Copenhagen Museum', but Thomas Pape (pers. comm.) reports that the species is not represented in that collection. The only specimen likely to be the type is the NHMW female even though Wiedemann (1821) indicated his material as being male.

Other type material examined: SOUTH AFRICA: ♀ holotype (*luscinius*) 'Type' [circular with green rim], 'Dr. Smith. / S. Afr. 44–6.', 'One of Walkers / series so named. / E A W', 'Holotype / *Dasypogon* / *luscinius* Walker / det. J.E. Chainey. 1983' [this label has a circular red rimmed label glued to its upper right hand corner reading 'Holo- / type'] (BMNH). Notes: The *luscinius* ♀ holotype is double mounted on a cellulose strip. Condition: Poor, head detached and glued to mounting strip, both antennae broken off beyond pedicel. The thorax remains on its mounting pin but all the legs are broken off beyond trochanter; one, probably the right prothoracic leg, is glued to the mounting strip and is complete enough to show the condition of the pulvilli. The right wing is missing while the left wing is dirty and has somewhat ragged edges (approx. measurements are 5.0×2.0 mm). The abdomen is detached and glued to the mounting strip. The specimen is sufficiently well preserved to allow comparisons with other specimens. A well preserved female from 'Knersvlakte, North of Van Rhynsdorp' agrees very well with the holotype.

Type locality: I here designate the type locality as South Africa, Western Cape, Table Mountain Nat. Park, Olifantsbos [34°14.442'S:18°23.159'E].

Other specimens examined: SOUTH AFRICA: 1♂ 'South Africa, Cape Prov / 11mi. [*c*. 18 km] NNE. Hondeklipbaai / Sept. 8, 1972, 3017Ab, / ME&BJ. Irwin, 200 ft. alt– / Reddish sand, shrubs' (NMSA); 2♂ 6♀ 'Wallekraal [30°24'S:17°31'E] / Namaqualand' ~ 'Mus., Expd., / Oct. 1950' (SAMC); 1♂ 'South Africa, Cape Prov / 7mi. [*c*. 2 km] N. Vanrhynsdorp / Sept. 10, 1972. M.E. Irwin / 400 ft, 3118Bc, red dunes' (NMSA); 1♀ 'Knersvlakte [31°15'S:18°45'E] North / of Van Rhynsdorp / South-West Cape / 6–9 October 1964 / B&P Stuckenberg' (NMSA); 1♀ 'S. Afr. C.P. / Koekenaap [Siding, 31°32'S:18°17'E] / Skaapvlei / 28.ix.76 / V.B. Whitehead' (SAMC); 3♂ 9♀ 'Olifants River [31°42'S:18°12'E] / bet. Citrusdal & / Clanwilliam C.P.' ~ 'Museum Staff / Oct. – Nov. 1931' (SAMC); 1♂ 'South Africa C.P. / Doringbaai 31.44S / 18.14E 17.xi.1984 / C.D. Eardley' (SANC); 2♀ 'Sth Africa: Cape Prov / 34km N Op die Berg / 3219CC 21.xi.1986 / Londt & Quickelberge / Sandy area/grass' (NMSA); 1♂ 'Cape Province / 11km W of Clanwilliam [32°11'S:18°54'E] / on road to Graafwater / 1.xi.1989 / F.W. & S.K. Gess' (AMGS); 1♀ 'Leipoldtville [32°13'S:18°29'E] / - Eland's Bay / C.P.' ~ 'Mus., Exp., / Oct., 1947' (SAMC); 6♂ 10♀ 'Paleisheuwel [32°28'S:18°43'E] / C.P.' ~ 'Mus., Exp., / Nov. 1948.' (SAMC); 1♂ 2♀ 'S Africa: Cape #63 / 14km NNW Citrusdal / 32°31'S:18°58'E 300m / Date: 1.ix.1991 / Coll: J.G.H. Londt / Woody plants; sandy' (NMSA); 6♂ 10♀ 'Citrusdal [32°35'S:19°01'E] / Distr.' ~ 'Mus. Exp. / Nov. 1948' (SAMC); 3♂ 3♀ 'Sth Africa: W Cape / Gonnemanskraal N of / Jacobsbaai JGH Londt / 32°57'14"S 17°53'07"E / 21–26.xii.2002 0–10m / Dune sand & vegetation' (NMSA); 1♀ 'Cape Province / Worcester. [33°39'S:19°26'E] / January 1929', 'S. Africa. / R.E. Turner. / Brit. Mus. / 1929-96' (BMNH); 1♀ 'Capland / Stellenbosch [33°56'S:18°51'E] / 25 x 1925 / Dr. H. Brauns.' (NMSA); 1♂ 1♀ 'South Africa: W Cape / Good Hope Farm *c*. 35km / SW Robertson 380m / 33°59'13"S 19°36'00"E / 22–23.x.2005 JGH. Londt / *Protea*, *Dodonaea* fynbos' (NMSA); 1♂ 'Sth Africa: Cape Prov / 10km NE Muizenberg / 3418AB 28.xi.1981 / B.R. Stuckenberg / Coastal Macchia' (NMSA); 2♂ 1♀ 'Sth Africa: Cape Prov / Brenton on Sea 3423AA / 10.xii.1979 J. Londt / & B. Stuckenberg Dune / & hillside vegetation' (NMSA); 2♂ 1♀ 'Strandfontein [34°05'S:18°33'E] / False Bay / 1 Nov. 1960' (SAMC); 1♀ 'Strandfontein / March 1950 / Zinn, Hesse' (SAMC); 2♂ 2♀ 'South Africa: W Cape / Table Mountain Nat. Park / Silvermine 18.x.2006 100m / 34°06.994'S:018°24.253'E / JGH Londt Skildersgatkop / Trail Sandy fynbos area' (NMSA); 1♂ 1♀ 'S Africa: Cape #43 / Kommetjie (Hillside) / 34°09'S:18°20'E 30m / Date: 1.x.1993 / Coll: J.G.H. Londt / Macchia: Sandy area' (NMSA); 6♂ 4♀ 'South Africa: W Cape / Table Mountain Nat. Park / Olifantsbos 16.x.2006 20m / 34°14.442'S:018°23.159'E / JGH Londt Sandy hillside / fynbos area with flowers' (NMSA); 1♂ 2♀ 'South Africa / Cape Town - / Cape Point [34°21'S: 18°29'E], / xi.1930 / H.N. Simmonds' (BMNH); 1♂ 'Still bay. [Stilbaai, 34°23'S:21°27'E] C.P. / 9–12–xi–1940 / G. van Son' (NMSA); 33♂ 39♀ 'Pearly Beach [34°40'S:19°30'E] / Bredasdorp' ~ 'S.A.M. / 12:58 [xii.1958]' (SAMC).

Distribution, phenology and biology: This species is a South African endemic found in the winter-rainfall areas of the Western Cape Province (Fig. 43). Adults are active from spring to autumn (i.e. September–March (no February record)) (Table 1). Label data indicate that the species is found predominantly in sandy places (e.g. vegetated dunes and similar situations) with fynbos vegetation. Personal experience suggests that individuals rest on open sand in places where there are plants to provide some shade and protection from wind, and that population levels may be locally fairly high.

Similar species: This species is distinctive and not easily confused with others. The pulvilli are not minute, and although small (almost as long as the empodia and about one third the length of claws), are distinct.

Sisyrnodytes dasykylon sp. n.

Figs 19, 20, 43

Etymology: From Greek *dasys* (thick with hair, shaggy) and *kylon* (parts below eyes). Refers to the well-developed mystax that is supplemented by long frontal setae.

Redescription:

Male (based on holotype in excellent condition).

Head: Dark red-brown to black, with mainly white setose except for a few pale yellowish postocular setae. Antennae: Dark brown except for yellowish tip of style. Scape and pedicel white setose. Major ventral setae of pedicel project beyond level achieved by postpedicel. Basal element of style short (shorter than broad). Eye to face width ratio 1.8:1. Mystax longish, white. Frons and vertex white setose. Laterally situated frontal setae extending below antennal sockets, mingling with mystax. Occipital setae white. Some postoculars yellowish. Palps and proboscis white setose.

Thorax: Dark red-brown to black. Pronotum white and pale yellowish setose. Mesonotum extensively setose except for narrow paramedial strips and large sutural and postsutural areas. Lateral macrosetae white (*npl*) and yellowish (*spal* & *pal*), other setae white anteriorly, pale yellowish posteriorly. Scutellum apruinose with poorly defined transverse groove (has somewhat crinkled appearance); disc asetose, 20 pale yellowish apical setae (in single row). Pleural setae mostly white except for some yellowish setae dorsally on anepisternum and on katepimeron. Katatergals white, long, shafts more or less smooth. Legs: Dark red-brown, mainly white and pale yellow setose, but some black setae at apex of tibiae and ventrally on tarsi. Claws longish, dark red-brown; empodia moderately long, yellowish; pulvilli minute to absent. Wings 3.7×1.5 mm, C white setose basally, membrane transparent. Haltere with orange-brown knob, dark brown stalk.

Abdomen: Dark red-brown to black, white setose. Tergal setae mostly long, reclinate laterally, short, rather transparent medially (giving the impression of asetose areas medially).

Genitalia: Not dissected, but visible structures appear to conform to dissected and illustrated topotypic ♂ paratype (Figs 19, 20). Epandrium moderately developed and simple in structure, proctiger not extending greatly beyond it. External lobe of gonocoxite in lateral view broadly rounded proximally, fairly acutely pointed distally. Internal lobe fairly robust. Gonostylus somewhat shorter than internal lobe of gonocoxite and simple

in structure. Hypandrium flattish, sub-triangular in ventral view, with long gradually tapering medial lobe extending well beyond external lobe of gonocoxite. Aedeagus fairly slender with fairly blunt tip.

Female: Similar to male but have more yellowish setae which may even be described as orange in colour and in a few instances these outnumber white setae. A few specimens may even have some orange abdominal setae.

Variation: Wing length ♂ 2.9–4.7 mm, ♀ 3.2–5.4 mm.

Holotype: ♂ SOUTH AFRICA: *Northern Cape*: 'S Africa: Cape #33 / 23km SE of Middelpos / 32°01'S: 20°25'E 1200m / Date: 28.xi.1990 / Whittington & Londt / Banks of Visrivier' (NMSA).

Paratypes: SOUTH AFRICA: *Northern Cape*: 5♂ 5♀ same data as holotype (NMSA). *Western Cape*: 6♂ 14♀ 'S Africa: Cape #21 / 70km E of Laingsburg / 33°06'S:21°35'E 500m / Date: 24.xi.1990 / Whittington & Londt / Dry Dwyka River area' (NMSA, BMNH 1♂ 1♀).

Other specimens examined: NAMIBIA: 2♂ 1♀ 'Gt Karas Mtns [Groot-Karasberge, 27°20'S:18°45'E] / SWA / SA Museum' ~ 'Mus. Staff / Nov 1936 (1939 ♀)' (SAMC); 2♂ 2♀ 'Gt. Fish R. / Aiais [27°55'S: 17°29'E], S.W.A.' ~ 'Mus. Staff / Nov. 1936' (SAMC). SOUTH AFRICA: 4♂ 6♀ '26 mls [*c*. 41 km] North / of Postmasburg [28°19'S:23°04'E]' ~ 'Mus. Staff / Oct. 1939' (SAMC); 1♂ 4♀ 'Kenhardt [29°30'S:21°00'E] / Area' ~ 'Mus. Staff / Oct. 1939' (SAMC); 5♂ 4♀ 'South Africa: N Cape / 1 km S Carnarvon 1260m / Appie van Heerden Nat. / Reserve 14.xi.2008 / 30°58.83'S:22°07.39'E / J&A Londt Karoo scrub' (NMSA); 1♂ 'S Africa: Cape #34 / 2km N of Middelpos / 31°54'S:20°14'E 1250m / Date: 29.xi.1990 / Londt & Whittington / Dry scrub on dam bank' (NMSA); 3♂ 3♀ 'South Africa: N Cape / Fish River bridge 23 km / SE Middelpos 1145 m / 32°01.42'S:20°24.41'E / 18.xi.2008 J&A Londt / Sandy riverine scrub area' (NMSA); 2♂ 1♀ 'S.W. Africa: / Cape of Good Hope, / Nels Poort. [Research Station, 32°07'S:23°00'E] / 2.xii.1933. / J. Ogilvie' (BMNH); 1♀ 'S.W. Africa: / Cape of Good Hope, / Nels Poort. / 4.xii.1933. / J. Ogilvie' (BMNH); 5♂ 2♀ 'Sth Africa: Cape Prov / Gamka River 40km N / Prince Albert 3321BB / 11.xi.1986 500m / Londt & Quickelberge / Sandy area/Acacias' (NMSA); 1♂ 1♀ 'Gamkas Poort [33°19'S:21°43'E] / Oct 1937' (SAMC); 1♂ 'Cape Province / 43km ENE of Ceres [33°22'S:19°19'E] on / road to Sutherland / 2-3.xii.1989 / F.W. & S.K. Gess' (AMGS).

Distribution, phenology and biology: A fairly widely distributed species found in the Succulent Karoo and Nama-Karoo biomes of southern Africa (Fig. 43). Adults have been collected during spring and summer (October–December) (Table 1). Experience tells me that the species is found in fairly arid, sandy places and that population densities may be low.

Similar species: This species is similar to *nilicola* and *xeromyia*.

Sisyrnodytes irwini Oldroyd, 1974

Figs 21, 22, 44

Sisyrnodytes irwini: Oldroyd 1974: 73; 1980: 368 (catalogue).

Redescription:

Male (based on holotype in good condition; the first three abdominal segments are glued to a card and pinned below the specimen along with a micro-vial containing the macerated genitalia).

Head: Dark red-brown, blackish setose. Antennae: Dark red-brown except for tip of style which is yellowish. Scape and pedicel blackish setose. Major ventral setae of pedicel shortish, projecting to about halfway along postpedicels. Basal element of style short (only slightly longer than broad). Eye to face width ratio 1.8:1. Mystax of moderate length, blackish. Frons and vertex blackish setose. Laterally situated frontal setae not extending below antennal sockets. Occipital and postocular setae blackish. Palps and proboscis blackish setose.

Thorax: Dark red-brown, blackish setose. Pronotum dark red-brown setose. Mesonotum entirely setose except for narrow paramedial strips and sutural and postsutural spots. Scutellum apruinose with poorly defined transverse groove (has crinkled appearance); disc asetose, 12 dark red-brown apical setae. Pleural setae dark red-brown. Katepimeron asetose, katatergals long, shafts more or less smooth. Legs: Dark red-brown, mainly blackish setose (there are some small yellowish setae ventrally on tibiae and tarsi). Claws longish, dark red-brown; empodia longish yellowish, pulvilli small but clearly evident. Wings 3.5×1.5 mm. C black setose basally; membrane pale brownish stained except for distal third of wing. Haltere with orange-brown stalk and yellow knob.

Abdomen: Dark red-brown; short blackish setose (slightly longer laterally).

Genitalia (Figs 21, 22): Epandrium greatly reduced and simple in structure, proctiger extending well beyond it. Gonocoxite with fairly long external lobe tapering to broadly rounded tip, internal lobe long and fairly slender. Gonostylus long and slender. Hypandrium much flattened dorsoventrally, triangular in ventral view, with medial lobe extending almost as far as internal lobe of gonocoxite. Aedeagus robust with blunt tip.

Female: Similar to male but displaying some sexual dimorphism. Females (previously unrecorded) are never entirely dark red-brown setose, but always have some pale yellow and a few orange setae (not commonly).

Variation: Wing length ♂ 3.1–4.4 mm, ♀ 3.1–4.6 mm. A fairly uniform species displaying some geographical variation in setal coloration. Males may be entirely dark red-brown setose like the holotype (i.e. those in the southern parts of the distribution) or possess some white or yellow setae (i.e. those in the northern parts of the distribution) on head and thorax (i.e. dorsal part of mystax, frontals, some postoculars, some pronotals, all mesonotals, all apical scutellars, anepisternals, proepimerals). While the mystax may be entirely red-brown it is usually pale yellow, but may have a few dark red-brown and white setae as well. The pronotum, mesonotum, scutellum and all pleura, including katatergite, are yellow setose. A few females may have some yellow leg setae and even a few yellow abdominal setae laterally. The extent and intensity of wing staining are variable. Those with darker staining frequently have small areas involved.

Holotype (examined): ♂ SOUTH AFRICA: *Northern Cape*: 'South Africa, Cape Prov / 2 mi. [*c*. 3.2 km] SW. Brandkop [31°16'S:19°10'E], 1300 ft / Sept. 12, 1972, 3119Ac / ME&BJ. Irwin, Stream bed', '*Sisyrnodytes* / *irwini* sp. n. / det. H. Oldroyd 1972 / Holotype' [white] (NMSA). Note: Oldroyd (1974) records: 'Type in Pietermaritzburg. Type-locality: Cape Province, 38 km S.W. Brandkop (Irwin).' The conversion from imperial to metric units being incorrect (2 miles = 3.2 kilometres).

Other specimens examined: NAMIBIA: 1♂ 3♀ 'Namibia 60km S. Aus / 2716AB 1.ix.1983 / Londt & Stuckenberg / Broken veld at base / of small hill' (NMSA). SOUTH AFRICA: 2♂ 1♀ 'Sth Africa: Cape Prov / Richtersveld 2816BD / 40km S of Ochta Mine / Londt & Stuckenberg / 2.ix.1983 / Mixed Karoo / bush with few flowers' (NMSA); 6♂ 2♀ 'Sth Africa: Cape Prov / Augrabies Falls Nat. / Park 8.ix.1983 / 2820CB B Stuckenberg / & J Londt Rockery & sandy areas in Camp' (NMSA); 2♂ 'Sth Africa: Cape Prov / Richtersveld 6km W / of Kuboes 1.ix.1989 / 28°27'00"S:16°59'30"E / B Stuckenberg J Londt / P Croeser 200m Sandy / area with succulents' (NMSA); 1♀ 'Onseepkans [28°45'S:19°17'E] / nr Orange Riv / Bushmanland' ~ 'Mus Staff / Oct. 1959' (SAMC); 1♂ 'Pofadder [29°08'S:19°23'E] / Bushmanland' ~ 'Mus. Staff / Oct. 1939' (SAMC); 3♂ 3♀ 'Naib [29°21'S:18°20'E] or / Bushmanland / Btw Springbok / and Pella' ~ 'Mus Staff / Oct. 1939' (SAMC); 1♀ 'Sth Africa: Cape Prov / 2km NE of Carnarvon / 14.xi.1986 3022CC / Londt & Quickelberge / 1350m Flat scrubland' (NMSA); 1♂ 'Cape Prov / 7km N / Brandvlei [30°27'S:20°29'E] / VB Whitehead' (SAMC); 1♀ 'Sth Africa: Cape Prov / 5km SE of Middelpos / 3120CC 17.xi.1986 / Londt & Quickelberge / 1190m Dry scrubland' (NMSA); 1♂ 'Thee Kloof [32°06'S:20°42'E] / Fraserburg C.P.' ~ 'Mus Staff / Nov. 1935' (SAMC); 1♀ 'Dikbome / Merweville [32°40'S:21°31'E] / Koup / C.P.' ~ 'Mus., Expd., / Oct. 1952' (SAMC); 1♀ 'Willowmore [33°17'S:23°30'E] / – Vonderling / C.P.' ~ 'Mus., Expd., / Oct. 1952' (SAMC); 1♂ 'Gamka's Poort [33°19'S:21°43'E] / C.P.' ~ 'Mus., Expd., / Oct.

1952' (SAMC); 1♂ 1♀ 'Rooinek Pass [33°20'S:20°55'E] / C.P.' ~ 'Mus., Expd., / Oct. 1952' (SAMC); 1♂ 'Sevenweeks Poort / Rooinek Pass / C.P.' ~ 'Mus., Expd., / Oct. 1952' (SAMC).

Distribution, phenology and biology: Found fairly widely distributed within the succulent Karoo and Nama-Karoo biomes of southern Africa (Fig. 44), the species appears to favour arid places with sandy ground, succulents and scrub vegetation. It is active in the adult phase during spring and early summer (September–November) (Table 1). Data suggest that population levels may be locally low.

Similar species: This species is fairly distinctive and should not be confused with others. It is small, has a predominantly blackish mystax and small but visible pulvilli.

Sisyrnodytes major Adams, 1905

Figs 3, 4, 23–26, 40

Sisyrnodytes major: Adams 1905: 155; Oldroyd 1957: 86; 1974: 73 (fig. 66 entire ♂); 1980: 368 (catalogue).
Sisyrnodytes niger Bezzi, 1906: 283.
Sisyrnodytes disjunctus Séguy, 1931: 654.
Sisyrnodytes erebus Oldroyd, 1957: 85; 1980: 368 (catalogue). **Syn. n.**

As this species displays some geographical variation as well as sexual dimorphism I provide redescriptions of the types of both *major* (♀) and *erebus* (♂) as they adequately represent much of the observed diversity.

Redescriptions:

Male (based on holotype of *erebus* in fair condition; both antennae broken off beyond pedicel, right pro- and mesothoracic legs broken off beyond trochanters and missing, left metathoracic leg lacking terminal four tarsomeres; the specimen is double mounted on a cellulose strip).

Head: Dark red-brown to black with black, white and yellowish setae. Antennae: Dark red-brown (terminal parts missing). Scape and pedicel black setose ventrally, yellowish setose dorsally. Major ventral setae of pedicel missing. Eye to face width ratio 1.9:1. Mystax short, mixed black and yellowish ventrally, white dorsally. Frons and vertex pale yellow setose. Laterally situated frontal setae not extending below antennal sockets. Occipital setae black, postoculars pale yellow except for group of *c*. 5 black setae behind ocellar tubercle. Palps and proboscis black setose.

Thorax: Dark red-brown to black. Mesonotum entirely pale yellow and orange setose except for narrow paramedial strips, sutural and postsutural spots. Lateral macrosetae pale yellow, other setae mixed white and pale yellowish. Scutellum apruinose with moderately defined transverse groove; disc asetose, apical setae numerous pale yellowish, arranged in about three rows. Pleural setae dark red-brown to black and pale yellowish. Anepisternum with dark red-brown setae anterodorsally and pale yellowish setae posterodorsally. Katepimeron weakly dark red-brown to black setose, katatergals long, shafts more or less smooth, mainly black setose except for some yellowish setae dorsally. Legs: Dark red-brown, mainly black setose (there are some small white and yellowish setae on pro- and mesothoracic legs). Claws longish, dark red-brown; empodia short yellowish (most broken), pulvilli minute to absent. Wings 5.3×2.6 mm. C white setose basally; membrane pale brownish stained except for narrow hind margin beyond fusion of CuA_2 and A_1. Haltere red-brown.

Abdomen: Dark red-brown; black setose except for posterolateral parts of T1–6 which are mostly white setose.

Genitalia: Not dissected, but visible structures appear to conform to dissected genitalia of males from Nguruma (Kenya) (Figs 23, 24) and Zuarungu (Ghana) (Figs 25, 26). Epandrium greatly reduced, simple in structure, proctiger extending well beyond it. Gonocoxite with external lobe tapering to narrowly-rounded tip, internal lobe with deeply forked tip. Gonostylus shorter than internal lobe of gonocoxite, fairly robust with hooked tip. Hypandrium large, flattish, triangular in ventral view, with broad medial lobe extending almost as far as tip of internal lobe of gonocoxite and obscuring a view of other organs in ventral view. Aedeagus fairly robust, slightly curved in lateral view, with blunt tip.

Female (based on lectolotype of *major* in good condition, slightly dusty).

Head: Dark red-brown, white, pale yellow and dark red-brown setose. Antennae: Red-brown except for tip of style which is pale yellowish. Scape and pedicel mostly pale yellowish setose (a few small white setae present). Major ventral setae of pedicel project beyond level achieved by postpedicel. Basal element of style short (slightly longer than broad). Eye to face width ratio 2.3:1. Mystax mainly pale yellowish with group of white setae dorsally. Frons and vertex white, pale yellow setose. Laterally situated frontal setae not extending below antennal sockets. Occipital setae white, postoculars mixed white and pale yellow. Palps dark red-brown setose, proboscis white setose.

Thorax: Dark red-brown. Mesonotum entirely setose except for narrow paramedial strips, sutural and postsutural spots. Lateral macrosetae light brown; other setae mostly mixed white, pale yellowish and dark red-brown. Scutellum apruinose with poorly defined transverse groove; disc asetose, apical setae numerous, difficult to count (*c*. 40), red-brown, yellowish and white. Pleural setae mostly white except for some pale yellowish setae dorsally on anepisternum and katatergite. Katepimeron white setose, katatergals white, pale yellowish, long, shafts more or less smooth. Legs: Orange-brown, pro- and mesothoracic femora dark red-brown, mainly white and pale yellow setose, but there are black setae terminally on tibiae and ventrally on tarsi. Claws longish, dark red-brown; empodia short yellowish; pulvilli minute to absent. Wings 6.2×2.7 mm; C white setose basally; R_4 with obvious remains of supernumerary crossvein (spurvein) basally; membrane pale brownish stained except for distal third of wing. Haltere with dark red-brown knob, orange-brown stalk.

Abdomen: Dark red-brown, blackish and white setose; blackish setae small, confined to central parts of T1–4, white setae longish, erect laterally and on sterna, recumbent along posterior margins of T1–5 (some missing).

Variation and sexual dimorphism: Size – wing length ♂ 4.6–7.5 mm ($\overline{x}$=5.8 mm, n=44), ♀ 4.1–7.9 mm ($\overline{x}$=6.0 mm, n=48). While on average females are slightly bigger than males the range in size is fairly significant in both sexes. This is also true for a local population (measurable *erebus* type specimens from Azare) where wing lengths are as follows – ♂ 5.8–6.7 mm ($\overline{x}$=6.1 mm, n=7), ♀ 5.3–7.3 mm ($\overline{x}$=6.2 mm, n=14), although ranges were smaller. A fairly uniform species at any one locality, but displays sexual dimorphism in setal coloration (i.e. mystax – ♂ black and white (proportions vary), ♀ pale yellow; pleura – ♂ black and white, ♀ pale yellow; legs – ♂ mostly black setose, ♀ mostly pale yellow setose; and the degree of wing staining, ♂ darker stained, ♀ lighter stained (staining mostly confined to vein margins). Although there is variation within any given population, geographical variation is evidenced in the degree of wing staining,

especially in ♂ (i.e. *West Africa*: The Gambia, Ghana – extensively strongly stained except for tip and hind margin (Fig. 4); Benin – basal half of wing strongly stained including entire costal cell. *East Africa*: Eritrea – basal half of wing strongly stained including entire costal cell; Kenya, Tanzania – strongly stained basally (Fig. 3) including half of costal cell (or *c*. 2/3 of wing weakly stained). *Southern Africa*: Mozambique – strongly stained basally up to humeral crossvein (entire costal cell unstained)). Male terminalia show remarkably little variation over this extensive species range.

Type specimens examined: ZIMBABWE: ♀ lectotype 2♀ paralectotypes (*major*) 'Salisbury [Harare, 17°50'S:31°03'E] / S. Africa / F. L. Snow', 'Sept 1900 / 5050ft', 'Cotype / *Sisyrnodytes / major* / Adams' (SEMC). MOZAMBIQUE: 1♀ holotype (*disjunctus*) 'ct Juillet', 'Museum Paris / Mozambique / Vallée de Pompoué [Rio Pompué, 16°53'S:34°40'E] / P. Lesne 1924', 'Type' [red on cream], '*Sisyrnodytes* / *disjunctus* / Type ♂ / E. Séguy det. 1930' (MNHN). NIGERIA: 1♂ holotype (*erebus*) 'Type' [circular with red rim], 'Shaku. [09°33'N:06°10'E] / 14.12.10.', 'N. Nigeria. / J.J. Simpson. / 1912–460.', 'Holotype / *Sisyrnodytes* / *erebus* Oldroyd / det. J.E. Chainey. 1983' [this rectangular label has a circular red rimmed label glued to its upper right hand corner reading 'Holo- / type'] (BMNH); 5♂ 11♀ paratypes (*erebus*) 'Nigeria: / Azare. [10°41'N:10°12'E] / Dr. Ll. Lloyd.' (BMNH); 1♀ paratype (*erebus*) 'Nigeria: / Azare. / 1924 / Dr. Ll. Lloyd.' (BMNH); 2♂ 1♀ 1? paratypes (*erebus*), 'Nigeria: / Azare. / 1928-1929 / Dr. Ll. Lloyd.' (BMNH). THE GAMBIA: 1♀ paratype (*erebus*) 'Salikeni [Salikene, 13°21'N:14°01'W] / Gambia / 8.iii.1911 / J.J. Simpson' (BMNH); 1♀ paratype (*erebus*) 'Kerewan [13°22'N:14°13'W] / Gambia / 6.iii.1911 / J.J. Simpson' (BMNH).

Lectotype designation: Adams (1905) states that he saw three specimens and mentions both the male and female sex. However, all three specimens are female. He did not designate a holotype, and as the designation of a lectotype would provide taxonomic stability for this variable species, I hereby designate the only 'cotype' that shows no obvious damage as the lectotype. The other two females, both with visible damage (missing leg or detached wing) I consider to be paralectotypes. The lectotype is the smallest of the three specimens having wing measurements of 6.2×2.7 mm; the paralectotypes measure 7.1×3.0 and 8.0×3.6 mm respectively.

Notes on synonymised species:

Sisyrnodytes niger Bezzi, 1906: I have not seen the type material. Bezzi (1906) provides the following information for his Eritrean type specimen(s) 'Anseba, Halibaret, Tellini.' Although Oldroyd (1957) lists *niger* as a synonym of *major*, and states that the holotype is 'in Udine, Italy' he may not have studied the material personally as he does not list Bezzi's locality for *major*. Although I have not verified the whereabouts of Bezzi's material, I have seen 3♂ from Eritrea that carry old identification labels giving the name *niger*. These conform to my concept of *major* and so I accept this fairly long-standing synonymy.

Sisyrnodytes disjunctus Séguy, 1931: The holotype is in excellent condition. Although labelled as a male it is a female as stated by Séguy (1931). I can confirm that *disjunctus* is indeed a synonym of *major*.

Sisyrnodytes erebus Oldroyd, 1957: The synonymy of *erebus* with *major* is supported by evidence gained during a study of the variation seen in all the material available to me. In addition male terminalia appear to be remarkably consistent over the extensive range of the species (as can be seen when comparing illustrations of males from Kenya (Figs 23, 24) and Ghana (Figs 25, 26)). The fact that there is no male in the *major* type series does create some doubt concerning this synonymy, but that can only be dispelled when male specimens are available from the type locality.

Other specimens examined: BENIN: 1♂ [?] 'Bas Dahomey 1906 / D'Gallard [? somewhat illegible]' (MCMI). ERITREA: 3♂ 'Sammlung / F. Hermann', '*Sisyrnodytes / niger* Bezzi' [old faded yellowish label], 'Eritrea / *Sisyrnodytes / niger* Bezzi' [pink label found on only one of the specimens], '*Sisyrnodytes / niger* / Bezzi

/ ♂ / det. E. O. Engel' (ZSMC); 1♂ 'Eritrea / Aswara-Keren [Keren, 15°47'N:38°28'E] / Rd. 2.12.45 / K. Guichard' (BMNH); 1♀ 'Eritrea / Mt Rumio [?] / 7/2/54' (BMNH). THE GAMBIA: 3♂ 7♀ 'Keneba [13°20'N:16°01'W] , Gambia / 19.xi.74 [1♂ 1♀] 25.xi.74 [1♂] 26.xi.74 [1♀] 11.xii.74 [1♀] 27.xii.74 [1♂ 3♀] 27.ii.75 [1♀] / Grassland in burnt bush', 'W.F. Snow collection / pres. W.F. Snow, 1996' (OXUM). GHANA: 1♂ 2♀ 'Gold Coast / Zuarungu [10°47'N:00°48'W] / 15.xi.1952 / J. Bowden' (NMSA); 1♂ 'Gold Coast / Zuarungu / 22.xi.1952 / J. Bowden' (NMSA). KENYA: 1♂ 'Lake Rudolf. [L. Turcana, 03°30'N: 36°00'E] / Sept. 1944 / Mrs J. Adamson' (BMNH); 1♂ 1♀ 'Samburu Dist. [01°15'N:37°00'E] / June, 1944, / E. Opiko.' (BMNH); 1♀ 'Kabarnet Dist / Baringo [00°28'N:35°58'E], 1–44 [i.1944] / Museum Staff.' (BMNH); 1♀ 'O.U.E.C.Exp. / Mt. Kenya. / B.M. 1949-562', 'E. Africa: / Kijabe [Research Station, 00°55'S: 36°35'E] Plateau. / Southern extreme. / 6,800 ft. 17.vii.1949. / J.A. Riley' (BMNH); 2♂ 2♀ 'Kenya #61 / Nguruma, Kajiado dist / 01°50'S:36°56'E 700m / vi.1990, Rift valley / Coll: I.M.I. Abu-Zinid / Alluvial plains' (NMSA); 1♂ 3♀ 'Brit. E. Africa. / Near Wangi [Wange, 02°00'S:40°55'E], / coast of mainland. / 21–22 Feb. 1912. / S.A. Neave' (BMNH); 1♂ 'Kenya / near Kitui [? Kituti, 02°08'S:38°07'E] / 9.ix.74 / D.J. Greathead (BMNH); 4♂ 1♀ 'Brit. E. Africa. / Witu [02°23'S:40°26'E] / 28.ii.12. / S.A. Neave' (BMNH); 2♂ 'Kenya / Mtito / Andei [02°41'S:38°10'E] / 22.v.1963 / D.J. Greathead' (BMNH); 1♂ 1♀ 'Kenya / Taveta [03°24'S:37°41'E] / 9.vi.1962 / D.J. Greathead' (BMNH); 1♀ 'Kenya / Masai [? Masai Manyatta, 03°43'S:37°51'E] near / Orgisaille / 23.vi.74 / D.J. Greathead/ (BMNH). MAURITANIA: 1♂ 'N. Africa. / Mauritania; betw. Kiffa [16°37'N:11°24'W] & Tidjidja / 1931 / Mrs Mary Steele' (BMNH). NIGER: 1♂ 'Niger: / Nr. Zinder. [13°48'N:08°59'E] / 2.xii.1960. / G. Popov. / B.M. 1966-359' (BMNH). SOMALIA: 1♂ 1♀ 'Somaliland: / Gemhisem [somewhat illegible, ? Gemadin, 10°18'N:47°09'E] / 25/ii/53 / Desert Locust Survey' (BMNH). SOUTH AFRICA: 1♀ 'N. E. Zoutp. [Soutpansberg, 22°45'S:30°00'E] / dist. 7&8.16 [vii & viii.1916] / H.G. Breyer' (NMSA); 1♂ 'Maputa [26°59'S:32°45'E] / June ' [19]14 / H.G. Breyer' (NMSA). SUDAN: 1♂ 1♀ 'Sudan / Darfur, Teiga [15°38'N:25°40'E] / 27.x.1958 / G.B. Popov' (BMNH). TANZANIA: 2♂ 'Tanganyika / Old Shinyanga. [03°33'S:33°24'E] / 13.vii.55 / E. Burtt' (BMNH); 1♂ 1♀ 'Tanganyika / Shinyanga Dist. / Old Shinyanga / Dr E. Burtt. / on / burnt ground / 26.vii.56' (BMNH); 3♂ 3♀ 'Tanganyika / Shinyanga Dist. / Old Shinyanga / Dr E. Burtt. / 27.vii.56' (BMNH); 1♂ 'Tanganyika / Old Shinyanga / on unburnt / ground / E. Burtt. / 31.vii.56' (BMNH); 1♂ 1♀ 'Tanganyika / Arusha Chini [03°35'S:37°20'E] / 7.vi.1962 / D.J. Greathead' (BMNH); 1♂ 'Tanzania: / Same, [04°04'S:37°44'E] Rt. B1 / 8–16.ix.1992 / A. Friedberg' (NMSA); 2♂ 'T. Nash 6/9/1928 / Tanganika Territory / 489 [1♂] 490 [1♂] / Kikorie [? Kikorue, 07°18'S:35°33'E]' (OXUM); 1♂ 1♀ 'Njombe [09°20'S:34°46'E] / 6000–6500 ft. / Tanganyika / 8.8.1951 W.P.' (BMNH). UNKNOWN [? Sudan]: 1♀ 'Anglo-Egyp. Sud. / H.H. King' (BMNH).

Distribution, phenology and biology: Oldroyd (1957) says of *major*: 'One of the most widely distributed species, occurring from Eritrea: Asmara-Keren Road (*Guichard*), through Kenya: Witu and Wangi Dt. (*Neave*), Tanganyika: Shinyanga District (*Burtt*) to Southern Rhodesia: Salisbury (type of *major*) and Moçambique: Pompué Valley (same latitude as Salisbury) (type of *disjunctus*)'. For *erebus* he recorded 'Holotype ♂ Northern Nigeria: Shaku (*Simpson*). Paratypes: Azare (*Lloyd*), 5♂ 15♀. Gambia: Kerewan, 1♀; Sankeni, 1♀ (*Simpson*)'. With the synonymy of *erebus* the distribution of *major* is greatly extended into West Africa (Fig. 40). According to Oldroyd (1957) *major* is active in the adult phase during 'December–February in north; July in south.' Specimens listed in this paper were collected in every month of the year except April (Table 1). The species appears to be mainly winter-active, bearing in mind that it is found both north and south of the equator (Table 1). Although there is very little label data that provides information about habitat preferences, Oldroyd (1957) reports that 'Dr. Burtt took it on burnt ground, where its charred, black-and-white appearance would give good concealment'. This association with burnt vegetation is supported by label data on some Gambian specimens (see above).

Similar species: This species is similar to *apicalis*, *aterrimus* and *vestitus*.

Sisyrnodytes nilicola (Rondani, 1850)

Figs 27, 28, 40

Acnephalum nilicola: Rondani 1850: 186.
Sisyrnodytes floccus Loew, 1856: 40; 1873: 108.

Dasypogon contrarius Walker, 1871: 257.
Sisyrnodytes brevis auct. nec Macquart (misidentifications): Wulp 1899: 86; Bezzi 1906: 283; Engel 1925: 352; Efflatoun 1937: 251.
Sisyrnodytes rufus Séguy, 1931: 655.
Sisyrnodytes nilicola: Oldroyd 1957: 86–87 (fig. 6 ♂ genitalia); 1980: 368 (catalogue); Theodor 1980: 89–92 (figs 137–140 ♂ genitalia, 141 ♀ spermatheca).

Redescription:

Male (based on ♂ *floccus* syntype in excellent condition, some anterior mesonotal setae rubbed off).

Head: Dark red-brown, white setose. Antennae: Red-brown except for tip of style which is yellowish. Scape and pedicel white setose. Major ventral setae of pedicel project beyond level achieved by postpedicel. Basal element of style short (as long as broad). Eye to face width ratio 1.3:1. Mystax longish, white. Frons and vertex white setose. Laterally situated frontal setae extend below antennal sockets, mingling with mystax. Occipital and postocular setae white. Palps and proboscis white setose.

Thorax: Dark red-brown, white setose. Pronotum white setose. Mesonotum entirely setose except for paramedial strips, sutural and postsutural areas. Lateral macrosetae white. Scutellum apruinose with poorly defined transverse groove; disc asetose, *c*. 26 white apical setae. Pleural setae entirely white. Katepimeron setose, katatergals long, shafts more or less smooth. Legs: Red-brown, entirely white setose. Claws longish, dark red-brown; empodia short pale yellowish, pulvilli minute to absent. Wings 3.7×1.6 mm. C white setose basally; membrane transparent. Haltere brown-yellow.

Abdomen: Dark red-brown; white setose, setae mostly reclinate, but some erect laterally.

Genitalia: Not dissected, but visible structures conform to dissected and illustrated genitalia of a male from Tel Aviv (Israel) (Figs 27, 28). Epandrium greatly reduced and simple in structure, proctiger extending well beyond it. External lobe of gonocoxite somewhat triangular in shape with acutely pointed distal end. Internal lobe small with slightly inflated tip. Gonostylus short, fairly robust, slightly curved. Hypandrium fairly small, triangular in ventral view, medial lobe tapering fairly suddenly to rounded tip. Aedeagus fairly robust, tapering gradually to small, blunt tip.

Female: Similar to male, although invariably with head and thorax somewhat yellow, golden or orange setose (i.e. ventral part of mystax, postoculars, pronotum, mesonotals (often mixed with white setae)). Abdomen may also have some yellowish setae.

Variation: Wing length ♂ 3.2–4.4 mm, ♀ 2.9–5.1 mm. Both sexes may have wing base yellowish or orange stained and legs red-brown (tarsi may be orange).

Type specimens examined: ALGERIA: 1♀ syntype (*rufus*) 'Museum Paris / Algérie / Dépt. d'Alger / Fort-de-l'Eau [Bordj El Kiffan, 36°45'N:03°11'E] / J. Surcouf 1921', 'Juin', 'Cotype' [red on cream], '*Sisyrnodytes* / *rufus* / ♂ Type / E. Séguy det 1930' (MNHN). EGYPT: 1♂ lectotype (*floccus*) 'Tor [Aṭ Ṭūr, 28°14'N:33°37'E] / aegypt', '*Sisyrnodytes* / *floccus* / m.', '10340', 'Coll. / H. Loew', 'Type' [orange], 'Zool. Mus. / Berlin' (ZMHB); 1♀ paralectotype (*floccus*) 'Tor. ae.g. / Trauenf.', 'Coll. / H. Loew', 'Type' [orange], 'Zool. Mus. / Berlin' (ZMHB). Note: I have not studied the *nilicola* type material which Oldroyd (1957) states is 'in Bologna'.

Notes on synonymised species:

Sisyrnodytes floccus Loew, 1856: I accept this long-standing synonym pending a modern revision of Palaearctic species. As this is the type species of the genus and stability is desirable through the designation of a lectotype, I designate the ZMHB male as lectotype and the female as paralectotype.

Dasypogon contrarius Walker, 1871: I have not seen the type(s), Oldroyd (1957) states that the material is not in the BMNH and this I can confirm. In the absence of the specimen(s), which are apparently lost, the synonymy must be accepted.

Sisyrnodytes rufus Séguy, 1931: I have studied a female (but labelled a male) syntype in MNHN. Séguy (1931) studied both male and female specimens (number not stated), but the whereabouts of the male(s) is not known. I accept the synonymy of this species, but believe that a review of the Palaearctic material is necessary before this synonymy can be accepted with confidence.

Type locality: Rondani (1850) did not give a precise locality for his material, but merely stated '*Ægypti*'. Subsequent workers have not designated a type locality, and I too refrain from doing so as this is best undertaken after a revision of the Palaearctic *Sisyrnodytes* fauna.

Other material examined:

Afrotropical Region: MAURITANIA: 1♂ 'Dr. J. Vosseler / Aïn Safra [19°27'N:12°02'W] / S.W. Oran. 1894', '45715', '*Sisyrnodytes* / *floccus* Lw' (ZMHB).

Palaearctic Region: ALGERIA: 2♀ 'Algeria: / Biskra [34°51'N:05°44'E], / on the dunes near / Route des Zibam [illegible]. / 30.iv.1894 / Rev. A.E. Eaton. / 94-114' (BMNH). EGYPT: 1♂ 'W. Assiouti [Assiout = Asyūṭ, 27°11'N:31°11'E], / 25.4.26', 'Coll. Efflatoun / Egypt' (BMNH); 2♀ 'W. Garawi [Wadi = Jarawī Wādī, 29°47'N:31°19'E], / 23.4.23', 'Coll. Efflatoun / Egypt' (BMNH); 1♀ 'Mariout [? Lake Mariut, 31°08'N:29°56'E] / 26.4.23', 'Coll. Mus. / Berlin' (ZMHB); 3♂ 3♀ 'Mariout / 2.5.21 [1♂ 1♀] 3.5.21 [1♂ 1♀] 19.4.22 [1♂] 27.4.23 [1♂]', 'Coll. Efflatoun / Egypte' (ZSMC). ISRAEL: 1♀ 'Israel / Avdat [30°48'N:34°46'E] / 1.v.1977 / A. Freidberg' (NMSA); 1♂ 'Israel / Tel Aviv [32°04'N:34°46'E] / 8.v.1973 / A. Freidberg' (NMSA). MOROCCO: 2♀ 'Marocco / Oualidia / N Safi [32°44'N:09°02'W] / 23.6.1987 / leg. W. Schacht' (ZSMC). SAUDI ARABIA: 1♂ 2♀ 'Arabia centr / El Riad [Riyadh, 24°41'N:46°42'E] / 5. 4. [♂] 3.4.58 [2♀] / leg. E. Diehl' (ZSMC). UNKNOWN: 1♀ 'W. Ti'sim [?] / 7.iii.22' (ZSMC). Note: One of the Algerian females is the smallest specimen I have seen (wing 2.9 mm long). Although probably correctly identified, it would be interesting to see males from the same region.

Distribution, phenology and biology: Oldroyd (1957) records the distribution as 'Morocco, Algeria, Egypt, Southern Arabia'. Some twenty years later he summarised the distribution as 'Egypt; widespread N. Afr. from Morocco to Egypt & South Yemen' (Oldroyd 1980). I have seen material I believe to be *nilicola* from Algeria, Egypt, Israel, Mauritania, Marocco and Saudi Arabia (Fig. 40). While I have not seen any Yemenese material I include the species in this review as Wulp (1899: 86) recorded a single female (under the name *brevis*) from Aden (12°50'N:45°00'E) and I have seen a specimen from Mauritania, also a country likely to have Palaearctic faunal elements. Bezzi (1906) records the species (as *brevis*) from Eritrea, but the identification is probably suspect. Efflatoun (1937: 255), writing about the Egyptian asilids states 'My records extend from the beginning of February (Gebel Elba) to the end of June (Sollum)', while Oldroyd (1957) reports adult activity as 'December–June'. My limited data indicate activity in March, April, May and June (Table 1). While labels provide little biological information, Efflatoun (1937) goes on to say that this species 'is one of our commonest Asilids' and that it 'is found everywhere in dry sandy localities'.

Comments: This species superficially resembles *dasykylon* from South Africa, especially with respect to mystacal development. As *nilicola* resembles Theodor's *engeddensis* from Palestine, and three unidentified species known to me from Morocco and Saudi Arabia, there is a definite need for a revision of the Palaearctic *Sisyrnodytes* fauna. Details of the unidentified Moroccan and Saudi Arabian specimens are as follows:

Species 1: 1♂ 1♀ 'Route 7064 env. / d'Ifni, Falaises. / A terre, vegetation / basse', 'Maroc Anki-Atlas / Tiznit 6.v. / 2000 / Maldes réc' (NMSA).