



Chironomidae from Gough, Nightingale and Tristan da Cunha islands

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Abstract

The resurrection of trans-oceanic dispersal is the most striking aspect of a major shift in historical biogeography toward a more even balance between vicariance and dispersal explanations. Molecular dating of lineage divergences favors oceanic dispersal over tectonic vicariance as an explanation for disjunct distributions in a wide variety of taxa. Although many oceanic islands harbor a disproportionately high biodiversity and number of endemic taxa, the chironomid fauna of the South Atlantic islands of Gough, Nightingale and Tristan da Cunha apparently consists of 6 species only: *Telmatogeton goughi* sp. n. (described as male and female), *Limnophyes minimus* (Meigen), *Smittia* sp. (described as female), *Thalassosmittia christinae* sp. n. (described as female), *Clunio jonesi* sp. n. (described as male) and *Allocladius lusciniolus* Sæther et Andersen (described as female). Except for the marine *T. goughi* and *C. jonesi* the other species are parthenogenetic. *Limnophyes minimus* and *A. lusciniolus* dominate the chironomid fauna. *Telmatogeton goughi* is close to *T. sanctipauli* (Schiner). *Thalassosmittia christinae* differs from *T. thalassophila* (Bequaert et Goetghebuer) by having hairy eyes and antenna with subapical seta. *Clunio jonesi* differs from *C. africanus* and *C. gerlachi* by having ultimate flagellomere as long as the 4 preceding segments and gonostylus with only 1–2 apical spines. *Allocladius lusciniolus* differs from other known females of the genus by having 1–5 setae apically on M_{1+2} .

Key words: Diptera, Chironomidae, new species, Gough Island, Nightingale Island, Tristan da Cunha

Introduction

Geographical distribution of terrestrial or freshwater taxa that are broken up by oceans can be explained by either trans-oceanic dispersal or vicariance in the form of fragmentation of a previously contiguous landmass. Vicariance biogeography emerged several decades ago from the fusion of cladistics and plate tectonics and quickly came to dominate historical biogeography. Dispersal being a random process was argued to add only noise to a vicariance system. A consequence of this has been a focus on the biogeography of continents and continental islands, considering the biogeography of oceanic islands less worthy of scientific attention because, being dependent on stochastic dispersal, it was uninteresting. However, molecular dating of lineage divergences favors oceanic dispersal over tectonic vicariance as an explanation for disjunct distributions in a wide variety of taxa. The resurrection of oceanic dispersal is the most striking aspect of a major shift in historical biogeography toward a more even balance between vicariance and dispersal explanations, and a vindication of the phylogenetic biogeography of Brundin (1981) emphasizing Hennig's Progression Rule (de Queiroz 2005). This new view implies that biotas are more dynamic and have more recent origins than had been thought previously (de Queiroz 2005). Amorim *et al.* (2009) also show that different elements with circumantarctic distributions presently occupying the same area do not necessarily belong to the same time period. Their model of "allochronic taxa" allows accommodation of conflicting sources of evidence now available for many groups with circumantarctic distributions.

In chironomids a northern Gondwanian (or Inabrezian) distribution appears to be common (Sæther 2000). This can be divided in an Afrotropical-South American pattern often extending into the Caribbean and/or Central America and further to North America, and an Afrotropical-South Asia pattern often extending to East Asia and/or Australia and may be connected with a Beringian track. However, in many aquatic groups the vicariance pattern

between tropical South America and Africa precedes that between Africa and South Asia. According to the current theory, the opposite should have been the case. This indicates that much of the Afrotropical-South Asia pattern is a result of more recent non-random dispersal including direct oceanic dispersal. Notably, several chironomids also are marine intertidal and can easily be spread by floating debris.

Oceanic islands, although small in area, harbor disproportionately high biodiversity and numbers of endemic taxa (Cowie & Holland 2006). Most records of chironomids from the subantarctic oceanic islands apparently consist of widespread taxa. However, their identification may be due to insufficient descriptions and identification keys. Thus the species identified as *Telmatogeton sanctipauli* (Schiner, 1868) and *Clunio africanus* (Hesse, 1937) from the Tristan da Cunha group of islands are here both shown to belong to closely related new species. On the other hand populations of *Limnophyes minimus* (Meigen, 1818) on the different subantarctic islands appear to be conspecific. This species apparently is facultative parthenogenetic with populations in the Southern Hemisphere exclusively parthenogenetic, whereas both sexual and parthenogenetic populations are found in the Northern Hemisphere. Whether there are several cryptic species or not or if the different populations can be separated by molecular markers remain to be seen and should constitute a future field of inquiry.

Localities. Tristan da Cunha Island and island group in the South Atlantic Ocean is located about midway between southern Africa and South America (Fig. 1). It consists of six small islands: Tristan da Cunha, Inaccessible, Nightingale, Middle, Stoltenhoff and Gough and the island group belongs to Great Britain. Inaccessible, Middle and Stoltenhoff are uninhabited, on Nightingale there are several small huts that are regularly occupied by Tristanians for varying lengths of time, while a weather station is operated on Gough Island. The islands all are volcanic in origin and lie approximately 540 km to the east of the Mid-Atlantic Ridge. They are approximately 2900 km and 3200 km from the nearest points of mainland South Africa and South America, respectively.

Tristan da Cunha, the largest and northernmost island of the group, has an area of 98 square km and is roughly circular, with a coastline of 33 km and a central volcanic cone (2,060 m) that is usually cloud covered. The climate is wet, windy and mild. About 1,675 mm of rain fall annually on the north coast at Edinburgh, the only permanent settlement. Plant and animal life includes elephant seals, which breed on the island, and other species not found elsewhere in the world (Encyclopedia Britannica 2011). On the island there are some deep, permanent small lakes in secondary volcanic craters and some semi-permanent rivulets draining mountane bogs, but most of the main watercourses in the gulches run only after heavy rains. The drainage at other times percolates underground, welling up at the shore, but in one place providing a constant stream across the Settlement Plain (Holdgate 1965). Holdgate (1965) recorded *Telmatogeton sanctipauli* and cf. *Parakiefferiella* from the island.

Nightingale lies 19 km southeast of Inaccessible and 32 km south-southwest of Tristan da Cunha. Its coast has low cliffs where millions of seabirds nest. Apart from the swamp pools known as The Ponds, Nightingale is a relatively waterless island (Holdgate 1965). There are no previous records of chironomids from the island.

Gough Island, the southernmost island in the Tristan da Cunha Island Group, lies about 370 km south-southeast of Tristan da Cunha. It is about 12 km long by 6 km broad. The island is formed as a result of Neogene orogenic volcanism (Maund *et al.* 1988). On Gough the upland plateaus are peat-covered and the blanket bog covering is broken by a number of small pools. From the upland mires, permanent torrential streams cascade into the valleys along the north and east coasts, or more abruptly down the western gulches and cliffs. The largest stream on Gough Island, the one in The Glen, is some 5 m wide and has numerous deep pools; in flood the stream may be up to 1.5 m deep while even in drought it maintains a steady flow of water. Other streams only slightly smaller drain the principal valleys. Freeman (1962) and Holdgate (1965) recorded *Telmatogeton sanctipauli*, *Clunio africanus* and *Smittia* sp. from the island. Jones *et al.* (2003) and Gaston *et al.* (2003) recorded 99 species of free-living pterygote insects from the island including the species described here. Barber-James (2007) repeated the records from Gough Island and added the records of *Limnophyes minimus* and *Telmatogeton sanctipauli* from Inaccessible Island.

Material and methods

A collaborative project, the 'Gough Island Terrestrial Invertebrate Survey' (GITIS), was set up between the Biodiversity and Macroecology Group (BIOME) at the University of Sheffield (United Kingdom), and the Spatial, Physiological and Conservation Ecology Group (SPACE) based at the University of Stellenbosch (South Africa). The results of the free-living pterygote insect portion of the GITIS including the preliminary identification of the chi-

ronomids by O. A. Sæther were reported by Jones *et al.* (2003). The material from Tristan da Cunha and Nightingale Island is part of a collection that emanated from a short project at the Islands in 2005 collected by Christine Hänel, Stellenbosch, South Africa. The material described here was sent us for identification by A. G. Jones and C. Hänel.

On Tristan da Cunha a total of 23 sites in eight places were sampled by Malaise trapping, on-site hand searches and collecting samples for Tullgren extractions. On Nightingale 10 sites were sampled in two main regions. On Gough similar methods were used in numerous localities (Jones *et al.* 2003). The intensive sampling most likely will have collected imagines of all or nearly all chironomids present on the islands. Immatures, however, were not actively sought.

The material was initially stored in alcohol. Slide preparations using Canada balsam as mounting medium were later made following the procedure outlined by Sæther (1969). Morphological nomenclature follows Sæther (1980). The measurements are given as ranges followed by a mean when four or more measurements are made, followed by the number measured in parentheses (n).

The holotypes and some paratypes of the new species are kept at the Department of Natural History, Bergen Museum, University of Bergen, Norway (ZMBN). Other material is deposited at the Natural History Collection, London (BMNH) and at the Tristan da Cunha and Nightingale Invertebrate collection, Tristan Conservation Department, Tristan da Cunha Island, South Atlantic (TCD).

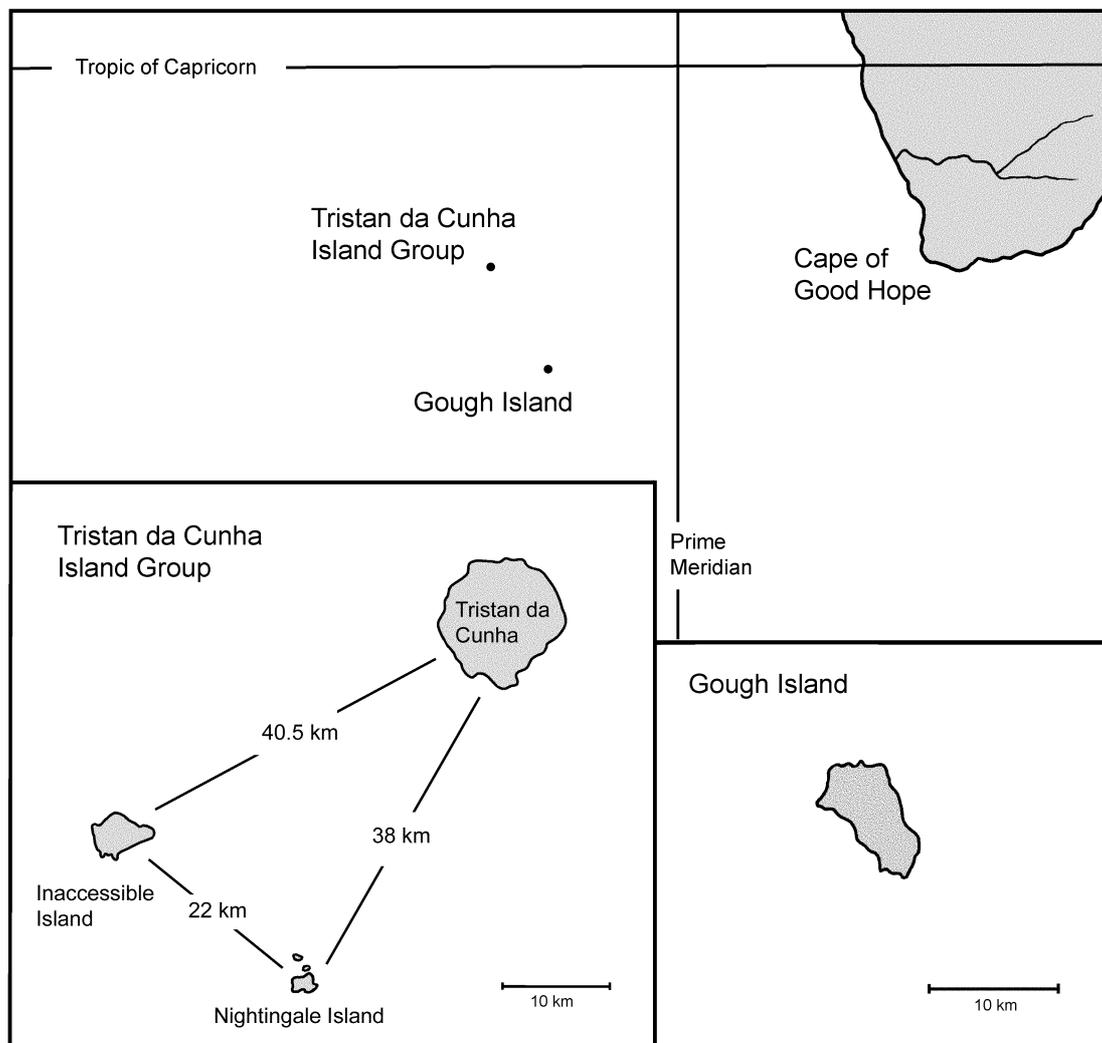


FIGURE 1. Map of the South Atlantic showing the position of Gough Island and the Tristan da Cunha group of islands.

***Telmatogeton goughi* sp. n.**

(Figs 2–10)

Telmatogeton sanctipauli Freeman (1962: 79); Holdgate (1965: 396); Barber-James (2007: 29); not Schiner, 1868: 25 *sensu* Wirth (1947: 182).

Telmatogeton sp. near *sanctipauli* Jones *et al.* (2003: 249); Gaston *et al.* (2003: 1096).

Type material. Holotype male, **GOUGH ISLAND:** Site TD1 at Tumbledown, 40°20'999"S, 09°53'256"W, boulder beach, 5 m a.s.l., 2000, Malaise trap, C. Hänel & A.G. Jones (ZMBN). Paratypes: 1 male, 3 females as holotype; 1 male, 5 females, Soph. E, on the east side of Sophora Glen, 40°18'954"S, 09°54'149"W, supralittoral, 5 m a.s.l., 16.ii.2001, sweeping, L. Mabulu & P. Skepe (BMNH, TCD, ZMBN).

Etymology. Named after Gough Island.

Diagnostic characters. The species differs from other known species by having tarsal claws bifid and asymmetrical, pectinate arm and simple arm subequal in length on one claw, about half as long on other claw; flagellomeres with setae; mid- and hind-trochanters each with knob-like projection which is about twice as long as broad.

Description. Male (n = 7, except when otherwise stated). Total length 4.81–6.24, 5.51 mm. Wing length 3.59–4.27, 3.95 mm. Total length / wing length 1.29–1.53, 1.39. Wing length / length of profemur 2.07–2.30, 2.13.

Coloration. General dark brown with vittae and markings blackish. Legs and abdomen brown with apophyses and hypopygium darker. Wings slightly brown.

Head. Pedicel 109–146, 126 µm long; 98–120, 107 µm wide; with 30–50, 41 setae. Six flagellomeres. AR 0.45–0.63, 0.53. Lengths (in µm) of flagellomeres: 90–131, 115; 41–49, 44; 41–49, 44; 28–49, 40; 38–49, 44; 139–169, 148. Flagellomeres 1 and 2 each with 1–3, 2 setae; third flagellomere with 0–3, 2 setae; fourth with 0–2, 1 seta; fifth with 1–2, 1 seta; sixth flagellomere with 2–4, 3 setae; no distinct sensilla. Temporal setae 28–35, 30 including 6–9, 7 very strong postorbitals; 6–8, 7 outer verticals; 15–18, 17 inner verticals; and 6–10, 8 very strong orbitals. Cibarial pump as in Figure 2. Clypeus with 27–98, 65 strong setae. Palpomere lengths (in µm): 34–56, 43; 49–94, 71; 101–150, 124. First palpomere very weak and indistinct.

Thorax. Antepnotum with 6–9, 8 (6) very weak setae. Dorsocentrals 4–9, 6, weak; prealars 7–12, 10; supraalar setae absent; prescutellar setae absent. Scutellum with 22–33, 26 setae of variable strength.

Wing (Fig. 3). VR 0.95–1.00, 0.98. Costal extension indistinct, 45–86, 59 µm long. Brachiolum with 4–9, 7 setae; R with 17–34, 25; R₁ with 6–9, 7; R₄₊₅ with 19–26, 23 setae; other veins bare. Squama with 8–20, 14 weak setae.

Legs. Mid trochanter with 143–217, 179 µm long; 75–105, 87 µm wide projection. Hind trochanter with 142–188, 168 µm long; 45–64, 52 µm wide projection. Spur of fore tibia apparently absent in two specimens, 56–71, 65 µm long in other five; spur of mid tibia 68–71, 69 µm long; spurs of hind tibia 71–98, 80 µm and 64–94, 78 (6) µm long. Width at apex of fore tibia 98–128, 105 µm; of mid tibia 79–113, 97 µm; of hind tibia 90–113, 105 µm. Pseudospurs present on ta₁ and ta₂ of all legs and occasionally on ta₃ of hind leg, 45–83 µm long. Tarsal claws bifid and asymmetrical, pectinate arm and simple arm subequal in length on one claw, about half as long on other claw. Lengths of claws not accurately measurable, but distance from base to apex about 100 µm long on all legs, with distance from base to apex of shorter pectinate arm about 80 µm. Lengths and proportions of legs as in Table 1.

Hypopygium (Figs 4–6). Tergite IX weak, unsclerotized, with 2–7, 4 very weak setae; laterosternites each with 8–22, 13 setae. Aedeagus complex with several apodemes, mesal sclerites nearly straight and without hooked tips, 191–248, 209 µm long. Gonocoxite 349–413, 383 µm long; mesally strongly widened, width 180–221, 203 µm; width basally of enlargement 128–146, 141 µm. Gonostylus 154–188, 173 µm long; 75–94, 85 µm wide. HR 2.04–2.23, 2.13; HV 2.63–3.32, 3.05.

Female (n = 8, except when otherwise stated). Total length 4.48–5.79, 4.95 mm. Wing length 3.31–4.19, 3.61 mm. Total length / wing length 1.33–1.47, 1.37. Wing length / length of profemur 2.66–2.87, 2.77.

Coloration. General dark brown with vittae and markings blackish. Legs and abdomen brown with apophyses and genitalia darker. Wings slightly brown.

Head. Pedicel 98–116, 110 µm long; 98–116, 107 µm wide; with 29–55, 38 setae. Six flagellomeres. AR 0.41–0.61, 0.51. Lengths (in µm) of flagellomeres: 98–116, 105; 34–45, 41; 34–53, 43; 34–45, 39; 30–41, 34; 98–146, 129. First flagellomere with 1–3, 2 setae; second and third each with 1–2, 1; fourth and fifth each with 0–1, 1; sixth flagellomere with 3–5, 3 setae. Several flagellomeres often partly fused. Temporal setae 31–44, 37 including

6–10, 7 very strong postorbitals; 6–8, 7 outer verticals; 12–20, 16 inner verticals; and 6–9, 7 very strong orbitals. Clypeus with 45–83, 66 setae. Palpomere lengths (in μm): 34–53, 42; 45–68, 55; 90–124, 109. First palpomere very weak and indistinct.

TABLE 1. Lengths (in μm) and proportions of legs of *Telmatogeton goughi* sp. n., male (n = 7).

	fe	ti	ta ₁	ta ₂
P ₁	1666–2064, 1853	1689–2111, 1840	1009–1290, 1096	352–446, 392
P ₂	2229–2745, 2473	1877–2323, 2102	633–845, 744	258–228, 295
P ₃	2158–2839, 2474	1900–2299, 2101	1056–1290, 1160	504–680, 551
	ta ₃	ta ₄	ta ₅	LR
P ₁	141–188, 158	117–164, 142	117–164, 142	0.57–0.62, 0.60
P ₂	164–223, 191	129–176, 149	117–141, 136	0.33–0.38, 0.35
P ₃	211–258, 231	141–188, 161	117–164, 139	0.53–0.57, 0.55
	BV	SV	BR	
P ₁	4.94–5.70, 5.22	3.27–3.53, 3.38	0.9–1.4, 1.1	
P ₂	6.71–7.45, 6.90	5.71–6.70, 6.17	0.8–1.1, 0.9	
P ₃	4.98–5.83, 5.36	3.90–4.23, 4.04	1.0–1.2, 1.1	

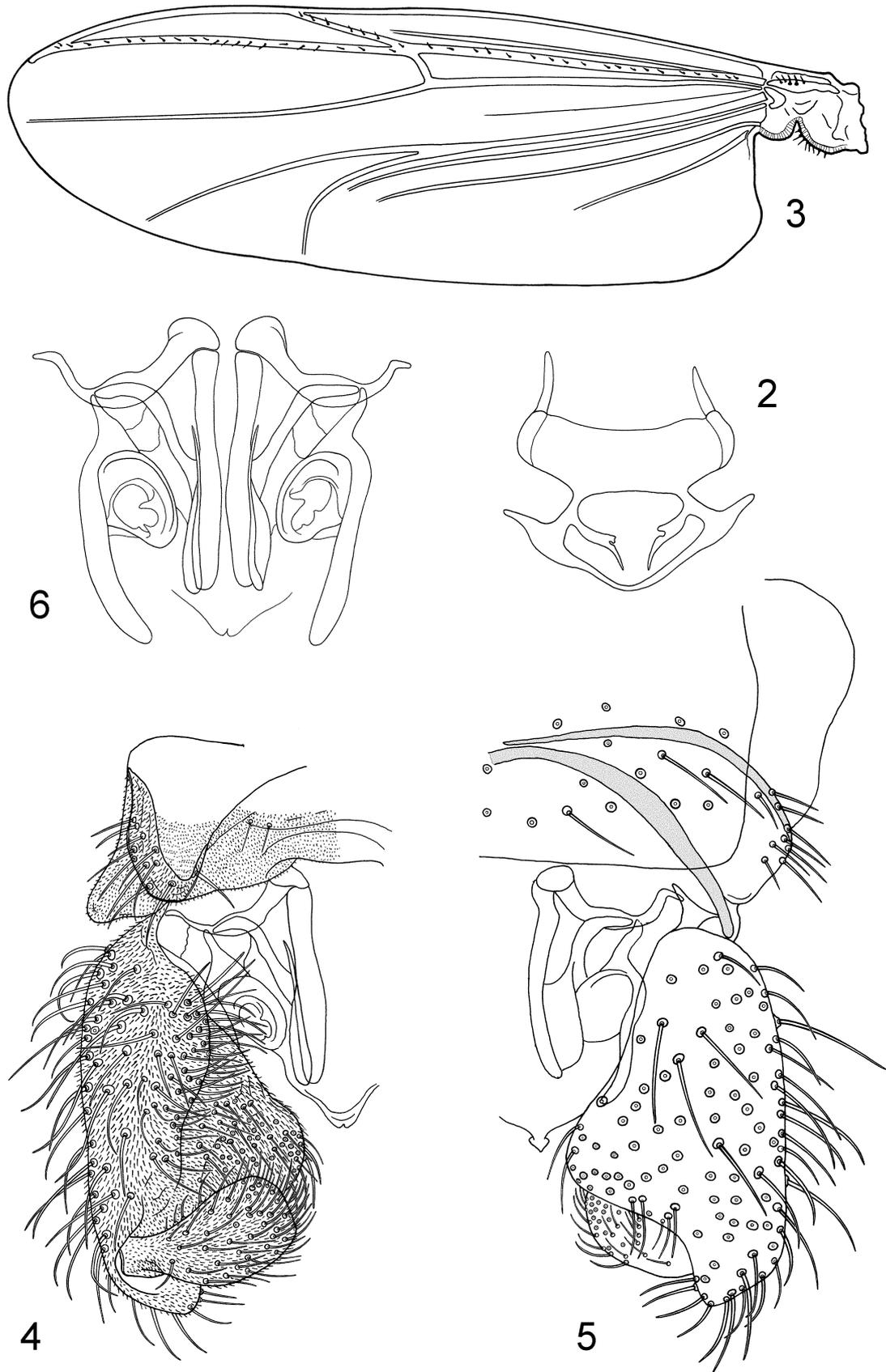
Thorax. Anteprepronotum with 5–10, 7 weak setae. Dorsocentrals 5–10, 8, weak; prealars 6–16, 11; supraalar setae absent. Scutellum with 20–35, 26 setae of variable strength.

Wing (Fig. 7). VR 0.94–1.07, 1.00. Costal extension indistinct, 30–68, 50 μm long. Brachiolum with 5–10, 7 setae; R with 13–33, 18; R₁ with 4–9, 6; R₄₊₅ with 11–23, 16 setae; other veins bare. Squama with 6–16, 9 weak setae.

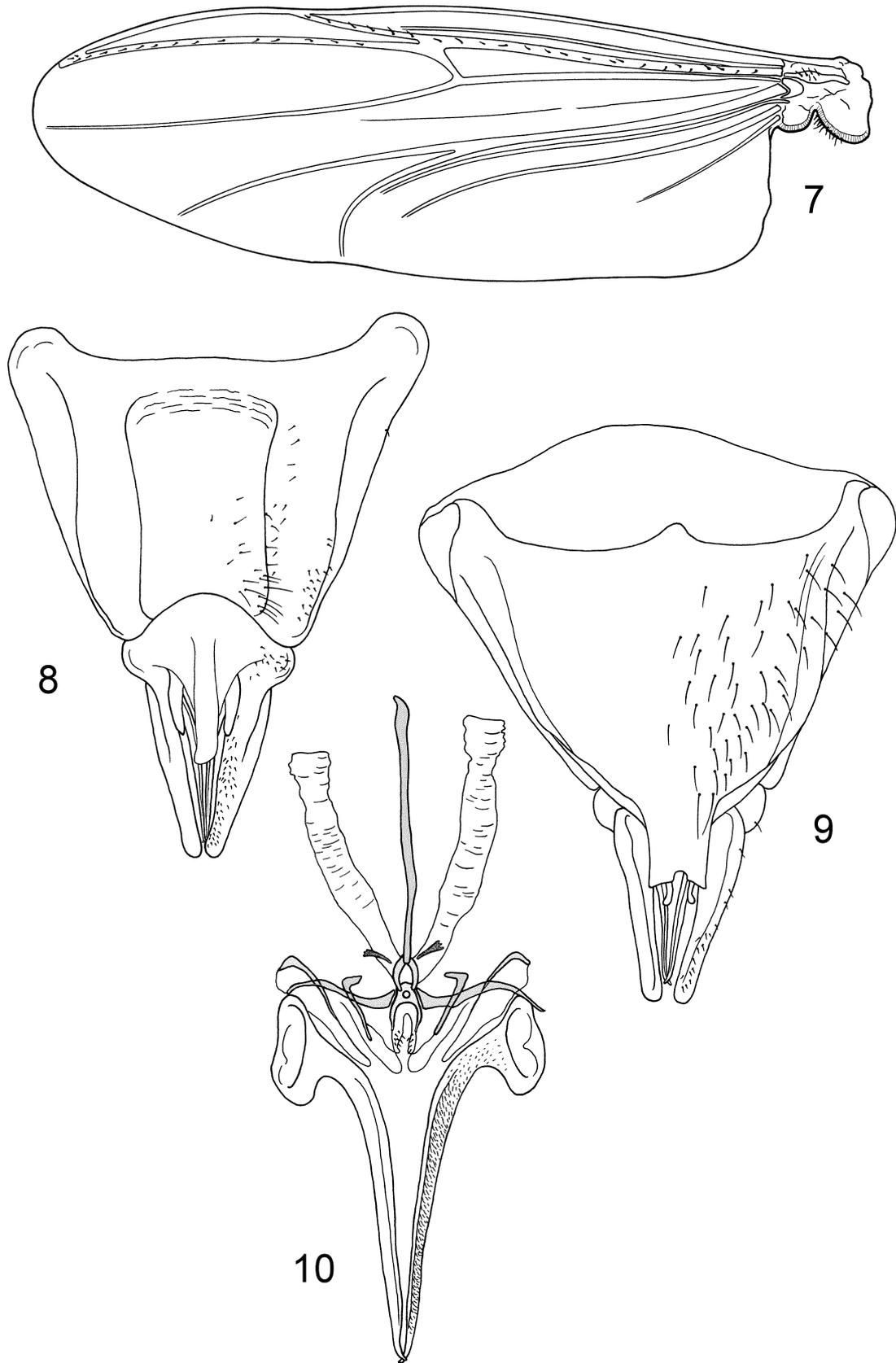
Legs. Mid trochanter with 124–225, 165 μm long; 41–94, 60 μm wide projection. Hind trochanter with 94–244, 153 μm long; 26–53, 36 μm wide projection. Spur of fore tibia 45–64, 55 μm long; spur of mid tibia absent in one specimen, 41–75, 52 μm long in the other; hind tibia with 2 spurs in 3 specimens, other 5 with single spur, 49–90, 69 μm and 56–83 (3) μm long. Width at apex of fore tibia 75–101, 85 μm ; of mid tibia 71–101, 86 μm ; of hind tibia 71–113, 87 μm . Pseudospurs as in male. Tarsal claws all simple, slightly more than 100 μm long on all legs. Lengths and proportions of legs as in Table 2.

TABLE 2. Lengths (in μm) and proportions of legs of *Telmatogeton goughi* sp. n., female (n = 8).

	fe	ti	ta ₁	ta ₂
P ₁	1150–1571, 1308	1079–1571, 1258	610–917, 757	235–352, 276
P ₂	1642–2158, 1859	1173–1575, 1352	493–704, 593	188–238, 220
P ₃	1829–2323, 2060	1337–1760, 1547	687–1032, 846	352–516, 422
	ta ₃	ta ₄	ta ₅	LR
P ₁	141–188, 166	117–141, 122	94–117, 103	0.57–0.65, 0.61
P ₂	117–188, 136	94–129, 104	82–117, 98	0.42–0.46, 0.44
P ₃	141–211, 160	94–129, 114	82–117, 100	0.53–0.59, 0.57
	BV	SV	BR	
P ₁	4.69–5.32, 5.00	3.06–3.65, 3.57	0.9–1.5, 1.1	
P ₂	6.27–7.31, 6.87	5.20–5.71, 5.43	0.9–1.5, 1.2	
P ₃	5.17–6.00, 5.62	4.02–4.50, 4.16	0.9–1.5, 1.3	



FIGURES 2–6. *Telmatogeton goughi* sp. n., male. 2—cibarial pump; 3—wing; 4—hypopygium, dorsal view; 5—hypopygium, ventral view; 6—aedeagus and internal apodemes.



FIGURES 7–10. *Telmatogeton goughi* sp. n., female. 7—wing; 8—genitalia, dorsal view; 9—genitalia, ventral view; 10—
notum, spermathecal ducts, labia, gonapophyses and gonostyli.

Genitalia (Figs 8–10). Tergite VIII with 15–24, 19 median setae of which many are not much more than strong microtrichia and each side with 5–7, 6 posterolateral setae. Sternite VIII darker anteriorly with 80–128, 102 setae of variable strength. Gonapophysis broad, without setae at base, with apical notch and 2 apical projections; main part 98–139, 123 μm long; projections each 34–45, 40 μm long. Gonocoxite without setae, but with numerous stronger microtrichia in addition to normal microtrichia. Gonostylus well developed, 304–398, 343 μm long; with median apodeme and strong parallel postero-laterally directed microtrichia giving gonostylus a striped appearance. Cercus 304–375, 334 μm long. Notum 251–338, 284 μm long.

Pupa and larva. Unknown.

Remarks. Wirth (1947, 1949) revised the genus. Since that time the genera *Paraclunio* Kieffer, 1911 and *Psamthiomyia* Deby, 1889 have been synonymized with the genus and Oliveira (1950, 1954, 2000) has described three new species. *Telmatogeton goughi* is close to *T. sanctipauli* Shiner, 1868 and *T. minor* (Kieffer, 1914) (Hesse 1934: 34) resembling both in having bifid asymmetrical claws with pectinate arms well developed, most flagellomeres with one or more setae, mid-trochanters with pubescent or hairy knob-like projection, circum-ocular (postorbital and orbital) setae very strong and gonocoxite strongly widened apicomediaally. It differs from *T. sanctipauli* in having a smaller size (wing length 3–4 mm as opposed to 5–6 mm); fewer scutellars (22–33 as opposed to about 50); having pectinate arm and simple arm subequal in length on one claw, about half as long on the other claw; mid-trochanter with knob-like projection about twice as long as broad (as long as broad in *T. sanctipauli*) and mesal sclerites nearly straight (not sinuous as in *T. sanctipauli*) and without hooked tips (hooked in *T. sanctipauli*). From *T. minor* it differs in having a darker coloration and higher chaetotaxy with 22–33 scutellars as opposed to about 12. *Telmatogeton eshu* Oliveira, 2000 apparently also is similar in many details, but differs significantly in the male aedeagus, by having about 30 setae on squama and female genitalia apparently with a much shorter gonostylus.

Distribution. The species is known from Gough Island, Tristan da Cunha and Inaccessible Island.

Linnophyes minimus (Meigen)

Linnophyes minimus (Meigen, 1818: 47)

Material examined. **GOUGH ISLAND:** Site SG1 at Snoek Gat, 40°20'439"S, 09°52'927"W, supralittoral, 5 m a.s.l., 2000, 3 females, Malaise trap, C. Hänel & A.G. Jones; as above except: SB1 at Seal Beach, 40°20'667"S, 09°53'199"W, boulder beach, 2 females; GL1a at The Glen, 40°18'873"S, 09°54'220"W, 5 females; SB4 at Seal Beach penguin colony, 40°20'711"S, 09°53'232"W, tussock-grassland, 25 m a.s.l., 2 females; SG2b at Snoek Gat, 40°20'437"S, 09°52'943"W, 1 female; TD2 at Tumbledown, 40°20'990"S, 09°53'291"W, 1 female; ET1 at East Tumbledown, 40°20'881"S, 09°53'285"W, tussock-fernbush, 50 m a.s.l., 2 females; SO2 at Sophora Glen stream, 40°19'070"S, 09°54'268"W, fernbush, 50–100 m a.s.l., 3 females; PC1 at Prion Cave, 40°20'724"S, 09°53'354"W, 1 female; FS1 at 'First Stop', 40°20'287"S, 09°53'387"W, 1 female; WA1, west of Admirals, 40°20'380"S, 09°53'980"W, 1 female; FS1 at 'First Stop' stream, 40°20'227"S, 09°53'367"W, fernbush, 100–150 m a.s.l., 1 female; TK3 on Tafelkop in presence of stream and some tussock grass, 40°19'960"S, 09°53'806"W, fernbush, 350–400 m a.s.l., 1 female; WC1 at Waterfall Camp, 40°18'356"S, 09°56'542"W, wet heath, 650–700 m a.s.l., 2 females; 2 females without data (BMNH, TCD, ZMBN). **NIGHTINGALE ISLAND:** Site 8, 1st Pond furthest from the path, 37°25'616"S, 12°29'302"W, mire wetland with pool surrounded by *Scirpus* spp., 30.iii.–01.iv.2005, 15 females, Malaise trap, C. Hänel; Site 10, 3rd Pond close to top of path, 37°25'533"S, 12°29'102"W, mire wetland, *Scirpus* spp, fernbush spp. and mosses, 26–28.iii.2005, 46 females, Malaise trap, C. Hänel (BMNH, TCD, ZMBN).

The species including parthenogenetic populations is redescribed by Sæther (1975: 1032 as *L. hudsoni* Sæther, 1975; 1990: 59). As mentioned by Sæther (1990) the parthenogenetic populations from the subantarctic islands mostly show a higher chaetotaxy than in most specimens of *L. minimus*, particularly on the preepisternum. The range given in Sæther (1990) is 5–15 preepisternals with non-parthenogenetic populations having 5–12 preepisternals. The population from Nightingale Island has 9–16, 12 (30) preepisternals, the one from Gough Island 7–16, 13 (26) preepisternals.

Distribution. The species is known from all regions except Australia (Sæther & Spies 2004) including the parthenogenetic populations of the subantarctic islands of Kerguelen, Marion, Prince Edward, Gough, Inaccessible and Nightingale (Sæther 1990; Jones *et al.* 2003; Barber-James 2007).

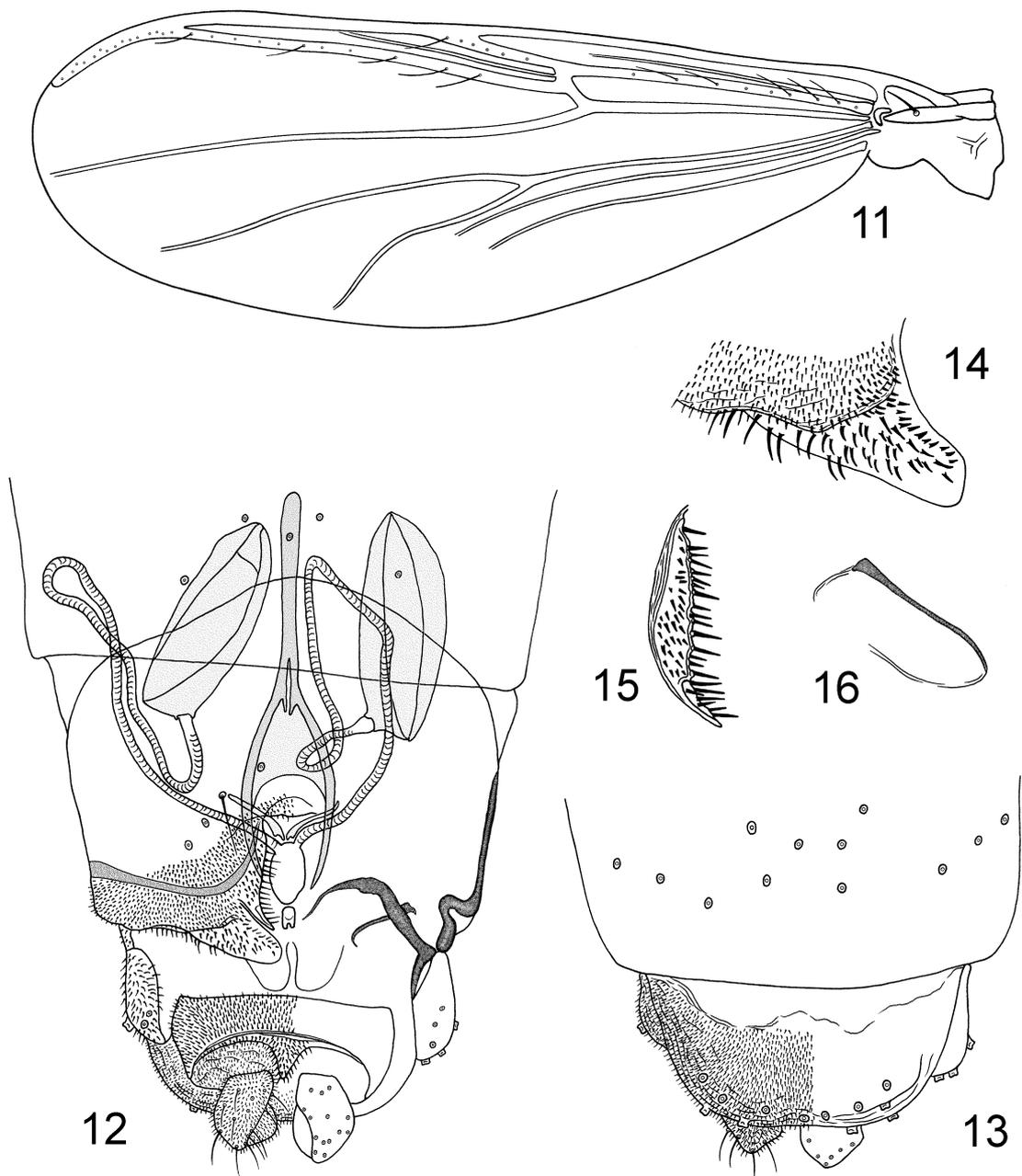
Smittia sp.
(Figs 11–16)

Material examined. TRISTAN DA CUNHA: Site 7, on rim west of patches, above Molly Gulch, below Dailies Hill, 37°108'44"S, 12°326'53"W, *Blechnum palmiforme*-grassland mix, 2270 ft., Malaise trap, 15–21.ii.2005, 1 female, C. Hänel (ZMBN).

Diagnostic characters. This female is typical for the genus in most details, but can perhaps be identified by details of the genitalia and the chaetotaxy.

Description. Female (n = 1). Total length 1.63 mm. Wing length 0.93 mm. Total length / wing length 1.76. Wing length / length of profemur 3.27.

Coloration. Fully brown.



FIGURES 11–16. *Smittia* sp., female. 11—wing; 12—genitalia, ventral view; 13—genitalia, dorsal view; 14—ventrolateral lobe; 15—dorsomesal lobe; 16—apodeme lobe.

Head. AR 0.44. Lengths (in μm) of flagellomeres: 51, 45, 43, 43, 79. Apical antennal seta 68 μm long. Temporal setae 3 including 1 inner vertical and 2 outer verticals. Clypeus with 8 setae. Tentorium 86 μm long, 11 μm wide. Stipes 83 μm long, 30 μm wide. Palpomere lengths (in μm): 19, 26, 53, 58, 75. Third palpomere apparently without sensilla clavata. Coronal suture 26 μm long.

Thorax. Median anteprenotal lobes well developed, no lateral setae on anteprenotum. Dorsocentrals 12, acros-tichals not measurable, prealars 6, supraalar seta 1. Scutellum with 4 setae.

Wing (Fig. 11). VR 1.26. Anal lobe reduced. Costal extension 101 μm long. R_{4+5} ending distal to apex of M_{3+4} , Cu_1 sinuate. Brachiolum with 1 seta, costa between FR and apex of R_{4+5} with 45 non-marginal setae, costal extension with 15 non-marginal setae, R with 9, R_1 with 6, R_{4+5} with 12 setae, other veins bare.

Legs. Spur of fore tibia 28 μm long, spurs of mid tibia both 17 μm long, of hind tibia 38 μm and 19 μm long. Width at apex of fore and mid tibia both 28 μm , of hind tibia 34 μm . Comb of 11 setae, 19–23 μm long. Lengths and proportions of legs as in Table 3.

TABLE 3. Lengths (in μm) and proportions of legs of *Smittia* sp., female (n = 1).

	fe	ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	BV	SV	BR
p ₁	284	321	161	95	66	43	38	0.50	3.18	3.76	2.0
p ₂	312	340	128	76	61	38	33	0.38	3.75	5.11	2.2
p ₃	340	383	194	109	95	47	38	0.51	3.18	3.73	2.7

Abdomen. Number of setae on tergites I–VIII as: 4, 10, 14, 16, 14, 14, 15, 12. Number of setae on sternites I–VIII as: 0, 0, 2, 2, 4, 6, 8, 6.

Genitalia (Figs 12–16). Gonocoxite low, rounded, with 4 setae. Tergite IX not divided, but slightly emarginated, with altogether 10 setae. Ventrolateral lobe relatively narrow, not covering dorsomesal lobe. Cercus 49 μm long. Segment X rounded posterolaterally. Seminal capsule about 83 μm long, about 56 μm wide, neck sclerotized for about 4 μm , microtrichia not observed, spermathecal ducts with loop, without bulbs before common opening. Notum 90 μm long.

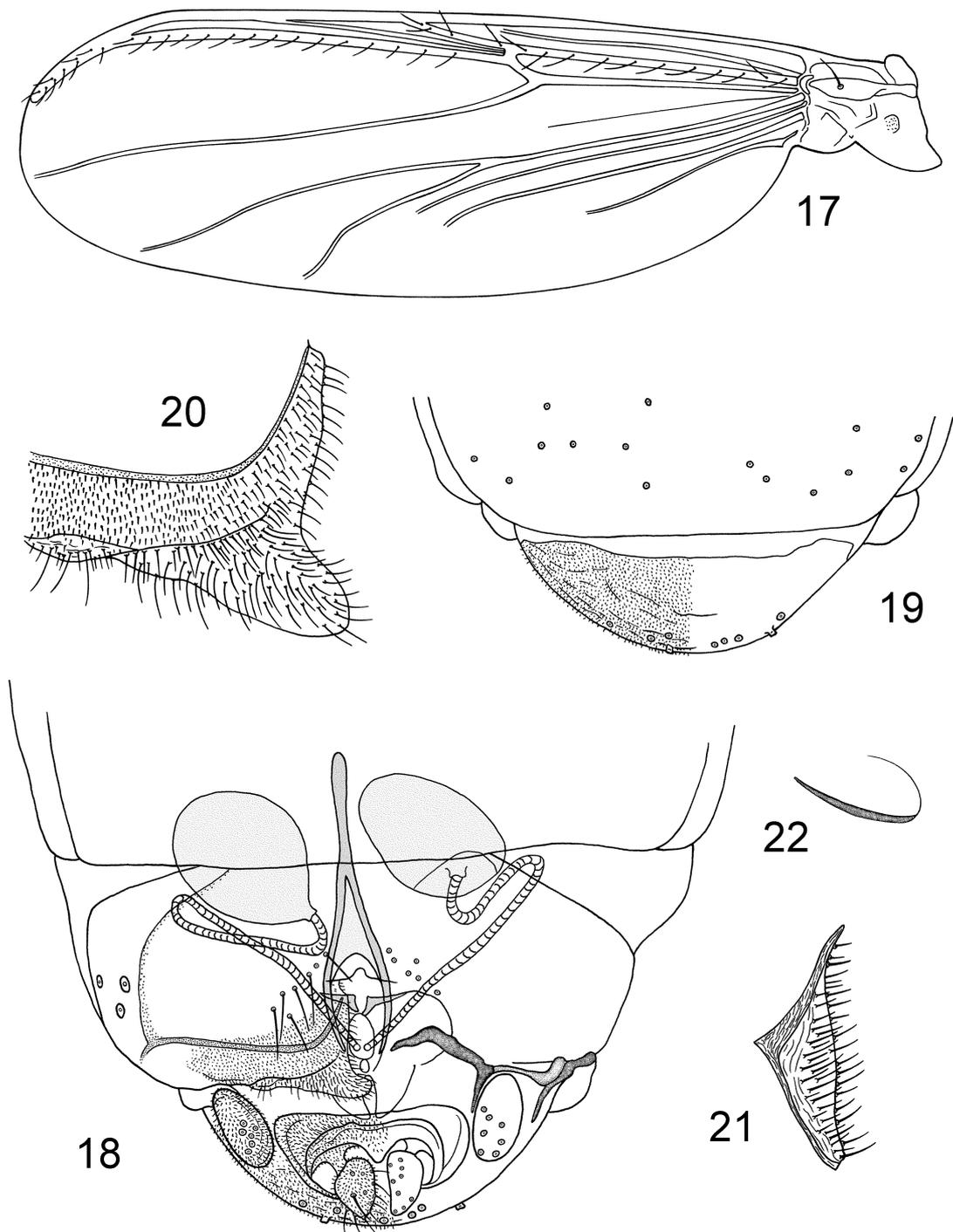
Remarks. The species probably is parthenogenetic and endemic, but as only a single specimen was found on Tristan, it is better not named here. The genus is in need of revision and this female is rather typical.

Thalassosmittia christinae sp. n.

(Figs 17–22)

Type material. Holotype female, **GOUGH ISLAND:** Site SG1 at Snoek Gat, 40°20'439"S, 09°52'927"W, supralittoral, 5 m a.s.l., 2000, Malaise trap, C. Hänel & A.G. Jones (ZMBN). Paratypes: 3 females, as holotype; as holotype except: 4 females, SB1 at Seal Beach, 40°20'667"S, 09°53'199"W; 2 females, SB4 at Seal Beach penguin colony, 40°20'711"S, 09°53'232"W, tussock-grassland, 25 m a.s.l.; 2 females, SG2b at Snoek Gat in upper region, 40°320'437"S, 09°52'943"W; 11 females, SB3 at Seal Beach, 40°20'659"S, 09°53'215"W, tussock-fern-bush, 50 m a.s.l.; 1 female, AD1 at Admirals, 40°20'293"S, 09°53'008"W; 3 females, BA1 at Base (weather station), 40°20'516"S, 09°53'028"W, fernbush, 50–100 m a.s.l.; 4 females, BR1 at the bridge over the stream (behind the weather station), 40°20'407"S, 09°53'228"W; 3 females, FS1 at 'First Stop' by the stream (along transect from the weather station towards Tafelkop), 40°20'227"S, 09°53'367"W; 5 females, PC1 at Prion Cave, 40°20'724"S, 09°53'354"W; 2 females, WA1 on the west side of Admirals, 40°20'380"S, 09°53'980"W; 2 females, TK1 at Tafelkop in the presence of a stream and some tussock grasses, 40°19'960"S, 09°53'806"W, fernbush, 350–400 m a.s.l.; 2 females, GD1 in Gonydale with stream and peat bog present, 40°19'933"S, 09°55'311"W, wet heath, 450–500 m a.s.l.; 3 females, WC1 at Waterfall Camp, by the waterfall, 40°18'356"S, 09°56'542"W, wet heath, 650–700 m a.s.l. (BMNH, TDC, ZMBN).

Etymology. Named in honor of Ms. Christine Hänel who collected some of the chironomid material and sent it to us for identification.



FIGURES 17–22. *Thalassosmittia christinae* sp. n., female. 17—wing; 18—genitalia, ventral view; 19—genitalia, dorsal view; 20—ventrolateral lobe; 21—dorsomesal lobe; 22—apodeme lobe.

Diagnostic characters. The species differs from *Thalassosmittia thalassophila* (Bequaert *et* Goetghebuer, 1913) by having hairy eyes, antenna with subapical seta and 14–28 dorsocentrals.

Description. Female (n = 10). Total length 1.61–1.99, 1.79 mm. Wing length 1.06–1.34, 1.18 mm. Total length / wing length 1.45–1.63, 1.52. Wing length / length of profemur 3.29–3.69, 3.50.

Coloration. Nearly completely dark brown.

Head. AR 0.31–0.42, 0.38. Lengths (in μm) of flagellomeres: 60–75, 65; 41–56, 49; 45–56, 51; 45–54, 50; 68–90, 81. Sensilla chaetica simple, conspicuous; 34–41, 37 μm long. Subapical seta present; 34–53, 40 μm long.

Temporal setae 5–8, 7 including 1–3, 2 weak inner verticals; 2–3, 2 outer verticals; and 1–3, 2 postorbitals. Clypeus with 8–12, 10 setae. Tentorium 94–135, 110 μm long; 8–17, 13 μm wide; tentorium of 3 specimens conspicuously more narrow, only 8–11 μm wide; 15–17 μm in remaining 7 specimens. Stipes 90–113, 99 μm long; 34–41, 37 μm wide at plate. Palpomere lengths (in μm): 23–26, 24; 34–45, 38; 60–86, 71; 56–79, 67; 75–56, 81. Third palpomere with 1 weak lanceolate sensillum clavatum; 15–19, 16 μm long. Coronal suture 34–68, 51 μm long.

Thorax. Median antepnotal lobes well developed, no lateral setae on antepnotum. Dorsocentrals 14–28, 20 uni- to biserial; acrostichals 3–5, 4, all anterior; prealars 6–9, 8; supraalar 1. Scutellum with 6–10, 8 setae.

Wing (Fig. 17). VR 1.23–1.38, 1.29. Anal lobe weak. Costal extension 86–150, 118 μm long. R_{4+5} ending distal to apex of M_{3+4} ; Cu_1 sinuate. Brachiolum with 1 seta; costal extension with 6–16, 11 non-marginal setae; R with 7–11, 9 setae; R_1 with 3–5, 4; R_{4+5} with 11–15, 13 setae; other veins bare. Squama bare.

Legs. Spur of fore tibia 30–34, 32 μm long; spurs of mid tibia 19–26, 21 μm and 15–23, 17 μm long; of hind tibia 38–45, 43 μm and 17–23, 20 μm long. Width at apex of fore tibia 30–34, 31 μm ; of mid tibia 26–34, 31 μm ; of hind tibia 38–41, 39 μm . Comb of 11–14, 12 setae; longest seta 30–38, 33 μm long; shortest 19–26, 22 μm long. Lengths and proportions of legs as in Table 4.

TABLE 4. Lengths (in μm) and proportions of legs of *Thalassosmittia christinae* sp. n., female (n = 10).

	fe	ti	ta ₁	ta ₂
p ₁	313–387, 337	397–473, 428	184–226, 207	113–146, 121
p ₂	387–444, 412	397–501, 440	166–198, 179	90–113, 99
p ₃	387–482, 423	473–552, 494	236–288, 252	123–151, 133
	ta ₃	ta ₄	ta ₅	LR
p ₁	76–95, 84	47–57, 54	38–52, 45	0.46–0.50, 0.48
p ₂	66–85, 75	43–57, 47	38–47, 46	0.40–0.42, 0.41
p ₃	104–146, 119	38–61, 51	38–52, 44	0.50–0.54, 0.52
	BV	SV	BR	
p ₁	3.58–3.85, 3.65	3.58–3.85, 3.65	2.2–2.9, 2.5	
p ₂	3.78–4.02, 3.93	4.59–4.86, 4.78	2.0–2.7, 2.4	
p ₃	3.16–3.57, 3.32	3.32–3.68, 3.57	2.8–4.0, 3.2	

Abdomen. Number of setae on tergites I–VIII as: 4–16, 10; 17–30, 24; 17–32, 26; 14–32, 24; 17–34, 26; 14–32, 24; 18–30, 24; 12–21, 17. Number of setae on sternites I–VIII as: 0; 0–4, 0; 0–9, 3; 3–9, 5; 6–13, 9; 8–15, 11; 10–15, 11; 7–17, 11.

Genitalia (Figs 18–22). Tergite IX undivided, large and curved making cerci and gonocoxites placed ventrally, tergite with altogether 11–15, 13 setae. Gonocoxite low, with 3–8, 6 strong setae and mostly a few strong microtrichia. Cercus 41–53, 49 μm long. Seminal capsule 90–113, 101 μm long; 56–75, 68 μm wide; microtrichia not observed; spermathecal ducts with long loop extending nearly to anterior apex of the large seminal capsules, apparently without bulbs before separate openings. Notum 90–113, 100 μm long.

Pupa and larva. Unknown.

Remarks. The presence of hairy eyes and of a subapical antennal seta would key this species out to *Smittia* Holmgren, 1869 rather than to *Thalassosmittia* Strenzke *et* Remmert, 1957. However, in most other details the species conforms to the female of *T. thalassophila* (Bequaert *et* Goetghebuer, 1913) as redescribed by Strenzke & Remmert (1957). Especially the limitation of acrostichals to the anteriormost part of the scutum (dorsomedian setae as opposed to the more posterior acrostichals in the terminology of Strenzke) combined with how tergite IX covers the cerci in dorsal view. The large seminal capsule is more in accordance with that of *Thalassosmittia* as illustrated for instance by Saunders (1928 fig. 11) for *T. marina* (Saunders, 1928) than with the typical *Smittia* as illustrated in Fig. 12. The genus *Thalassosmittia* includes species with hairy or pubescent eyes. However, no species is known to have a subapical seta on the antenna (Saunders 1928; Strenzke & Remmert 1957; Sublette 1967; Cranston *et al.* 1989; Wang & Sæther 1993). Because of this, the assignment of this parthenogenetic female to *Thalassosmittia* remains tentative until the immature stages are found.

Distribution and ecology. The species was caught from sea level up to 700 m altitude on Gough Island indicating that it is not restricted to the intertidal zone, but may also live in freshwater as does the Tibetan species *T. montana* Wang *et* Sæther, 1993. Sea spray gives the freshwater on these islands a relatively high salinity. Several species of *Pseudosmittia* Edwards, 1932 occurring in the marine intertidal zone also are semiterrestrial and semi-aquatic.

***Clunio jonesi* sp. n.**

(Figs 23–27)

Clunio africanus Freeman (1962: 78), not Hesse, 1937: 165.

Type material. Holotype male, **GOUGH ISLAND:** Site SB1 at Seal Beach, 40°20'667"S, 09°52'199"W, supralittoral, 5 m a.s.l., 2000, Malaise, C. Hänel & A.G. Jones (ZMBN). Paratypes: 5 males, as holotype (BMNH, TCD, ZMBN).

Etymology. Named in honor of the collector Dr. A. G. Jones.

Diagnostic characters. The species resembles *C. africanus* Hesse, 1937 and *C. gerlachi* Sæther, 2004 in having hairy eyes, strongly curved tibial spur and in the strongly incised third tarsomere on the hind leg as well as in the shape of the aedeagus. It differs by having ultimate flagellomere as long as the 4 preceding segments (as long as 3 preceding segments in *C. africanus*, as 6–7 preceding in *C. gerlachi*), scutellum with 18–26 setae (as opposed to 12–14 in *C. gerlachi*), all legs with only one tibial spur and gonostylus with only 1–2 apical spines (as opposed to 5–10 in *C. gerlachi* and *C. africanus*). Cu_1 is strongly and abruptly curved and sometimes recurved at apex, differing from the other two species with more gently curved Cu_1 .

Description. Male ($n = 6$, except when otherwise stated). Total length 2.02–2.84, 2.49 mm. Wing length 1.52–2.15, 1.86 mm. Total length / wing length 1.22–1.41, 1.34. Wing length / length of profemur 3.57–4.01, 3.75.

Coloration. Pale brown with hypopygium darker.

Head. Eyes hairy. Scapus 64–75 μm (3) long, 60–75 μm (3) wide. Pedicel 64–83, 73 μm long; 53–64, 60 μm wide. Antenna (Fig. 23) with 9 flagellomeres, ultimate flagellomere as long as 4 preceding flagellomeres, basal flagellomere 0.80–1.09, 0.97 times as long as ultimate. AR 0.35–0.45, 0.38. Lengths (in μm) of flagellomeres: 124–188, 150; 34–49, 43; 30–45, 37; 30–45, 37; 32–41, 38; 32–41, 38; 34–45, 40; 30–41, 37; 128–173, 156. No temporal setae. Clypeus without setae. Tentorium 68 μm (2) long, 11–15 μm (2) wide. Basal palpomere 19–26, 22 μm long; second palpomere 41–56, 50 μm long.

Thorax. Dorsocentrals 4–6, 5; acrostichals 3–4, 4, far anterior; prealars 3–7, 5. Scutellum with 18–26, 22 setae in multiserial transverse rows.

Wing (Fig. 24). VR 1.23–1.39, 1.31. R with 1–5, 3 setae; R_1 with 1–4, 2; R_{4+5} with 3–6, 5 setae; other veins bare. Cu_1 strongly and abruptly curved and sometimes recurved at apex.

Legs. Spur of fore tibia 26–45, 33 μm long; of mid tibia 26–45, 36 μm long; of hind tibia 34–56, 43 μm long; all spurs strongly curved at apex. Width at apex of fore tibia 49–71, 61 μm ; of mid tibia 47–71, 57 μm ; of hind tibia 53–81, 63 μm . Lengths and proportions of legs as in Table 5.

Hypopygium (Figs 25–27). Tergite IX with 2–17, 10 strong setae and 2–8, 5 very weak lateral setae. Gonocoxite 416–525, 458 μm long; with about 8–10, 9 setae on inner apical margin. Gonostylus 255–326, 286 μm long; with 1–2, 2 apical spines; 4–11, 8 μm long; inner fold also with 1 weak, but broad spine, 4–11, 7 μm long at apex. HR 1.57–1.63, 1.60; HV 0.79–0.92, 0.87.

Remarks. The genus *Clunio* Haliday, 1855 is in need of revision. However, *C. jonesi* differs from *C. pacificus* Edwards, 1926 by having hairy eyes and strongly curved tibial spur; from *C. africanus* Hesse, 1937 and *C. gerlachi* Sæther (Sæther 2004: 294) by having ultimate flagellomere as long as the 4 preceding segments, stronger curved Cu_1 and only 1–2 apical spines on the gonostylus; from *C. tuthilli* Tokunaga (Tokunaga 1964: 537) by the few apical spines on the gonostylus and an entirely different aedeagus; from *C. marinus* Haliday by the strongly incised third tarsomere on the hind leg, the strongly curved tibial spurs and more numerous setae on the scutellum. However, according to Edwards (1926 fig. 2a) there are 9 flagellomeres in *C. marinus* while Tokunaga (1964: 537) mentions 10 flagellomeres indicating that they have different species. The hypopygium is similar to that of *C. marinus* as for instance illustrated by Strenzke (1960 figs 11–14).

Ecology and distribution. It is remarkable that a *Clunio* could be collected in a Malaise trap as the adults ‘skate’ on the water surface. The species is known from Gough Island.

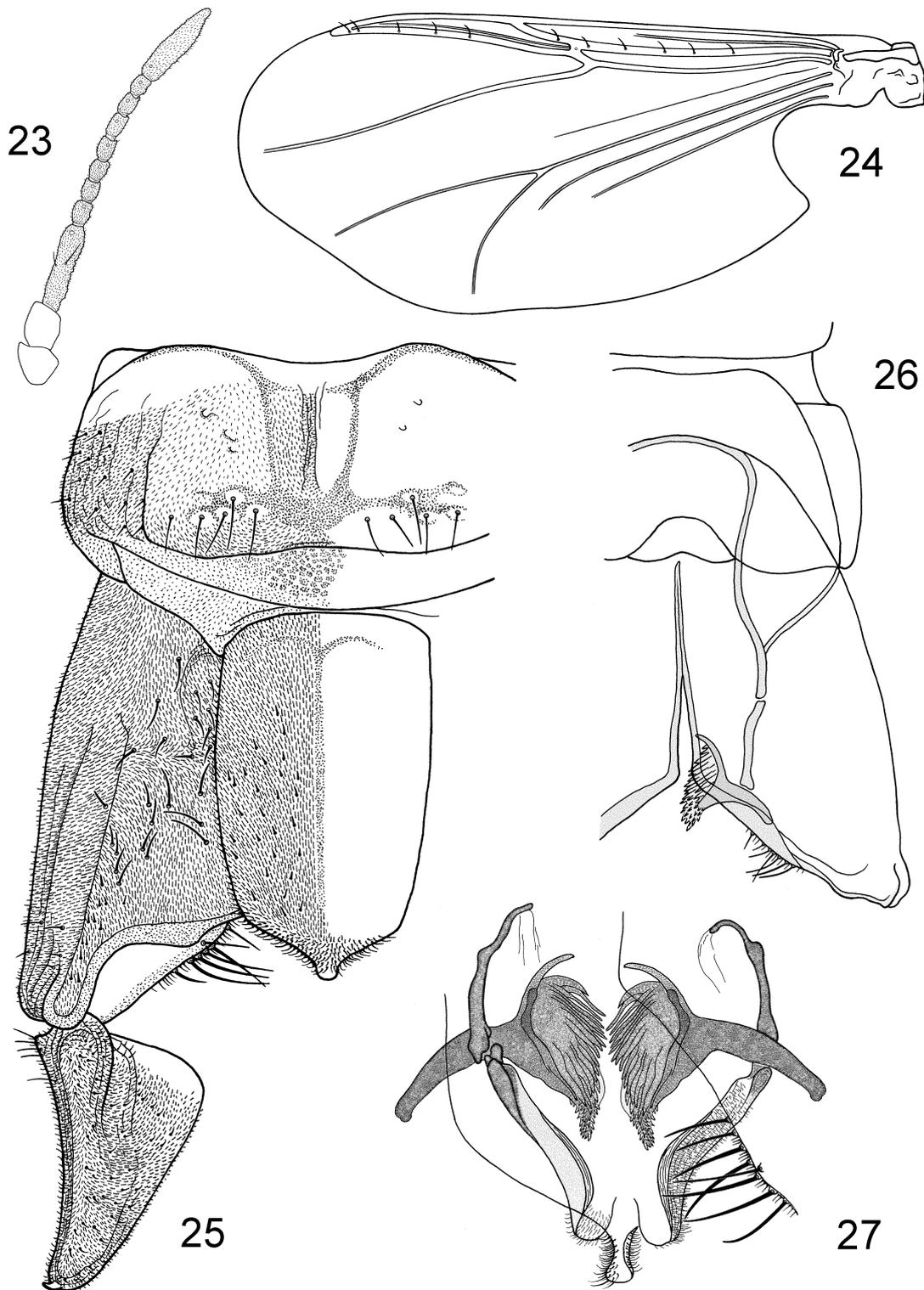


FIGURE 23–27. *Clunio jonesi* sp. n., male. 23—antenna; 24—wing; 25—hypopygium, dorsal view; 26—hypopygium, ventral view; 27—apodemes, dorsal view to the left, ventral view to the right.

TABLE 5. Lengths (in μm) and proportions of legs of *Clunio jonesi* sp. n., male (n = 6).

	fe	ti	ta ₁	ta ₂
P ₁	406–595, 496	595–898, 747	142–189, 167	47–66, 53
P ₂	510–718, 603	473–699, 581	95–113, 106	38–47, 43
P ₃	558–794, 669	539–775, 660	104–142, 126	38–57, 50
	ta ₃	ta ₄	ta ₅	LR
P ₁	38–57, 45	38–47, 40	47–76, 57	0.21–0.24, 0.23
P ₂	33–38, 37	28–38, 31	43–66, 53	0.16–0.20, 0.18
P ₃	57–95, 79	28–47, 38	47–85, 65	0.18–0.21, 0.19
	BV	SV	BR	
P ₁	6.42–8.28, 7.34	6.94–8.06, 7.43	0.6–1.0, 0.9	
P ₂	7.13–9.82, 8.18	10.40–12.50, 11.28	0.8–1.1, 1.0	
P ₃	5.69–7.53, 6.41	9.71–11.07, 10.46	1.1–1.7, 1.3	

***Allocladius lusciniolus* Sæther et Andersen**

(Figs 28–35)

Allocladius lusciniolus Sæther et Andersen in Ferrington and Sæther, 2011: 57.? cf. *Parakiefferiella* sp. Holdgate (1965: 396)*Bryophaenocladus* sp., pro parte (Jones et al. 2003)

A preliminary description was given in Ferrington and Sæther (2011: 57).

Type material. Holotype female, **TRISTAN DA CUNHA:** Site 7, on rim, west of patches, above Molly Gulch, below Dailies Hill, 37°108'44"S, 12°326'53"W, 2270 ft., *Blechnum palmiforme*-grassland mix, 15–21.ii.2005, Malaise trap, C. Hänel (ZMBN). Paratypes: 20 females, as holotype; 2 females, Site 9, Sandy Point, behind the hut, 37°114'47"S, 12°219'61"W, 102 ft., woodland shrub, fruit and forest trees, 21.ii.2005, C. Hänel (BMNH, TCD, ZMBN). **NIGHTINGALE ISLAND:** 1 female, Site 8, 1st Pond furthest from the path, 37°25'616"S, 12°29'302"W, mire wetland with pool surrounded by *Scirpus* spp., 30.iii.–01.iv.2005, C. Hänel; 4 females, Site 10, 3rd Pond close to top of path, 37°25'533"S, 12°29'102"W, mire wetland, *Scirpus* spp., fernbush spp. and mosses, 26–28.iii.2005, Malaise trap, C. Hänel (TCD, ZMBN). **GOUGH ISLAND:** 3 females, Site SB1 at Seal Beach, 40°20'667"S, 09°53'199"W, boulder beach, 5 m a.s.l., 2000, Malaise trap, C. Hänel & A.G. Jones; as previous except: 3 females, SG2a in the lower part of Snoek Gat, 40°20'437"S, 09°52'943"W, tussock-grassland, 25 m a.s.l.; 2 females, SG2b in the upper part of Snoek Gat; 1 female, TD2 at Tumbledown, 40°20'990"S, 09°53'291"W; 2 females, SB3 on Seal Beach, 40°20'659"S, 09°53'215"W, tussock-fern bush, 50 m a.s.l.; 3 females, AD1 at Admirals, 40°20'293"S, 09°53'008"W; 2 females, SG3 in Snoek Gat, 40°20'441"S, 09°52'974"W; 4 females, ET1 East of Tumbledown, 40°20'881"S, 09°53'285"W; 2 females, TD3 at Tumbledown, 40°20'979"S, 09°53'290"W; 2 females, BA1 at the Base (weather station), 40°20'516"S, 09°53'028"W, fernbush, 50–100 m a.s.l.; 4 females, BR1 at bridge over the stream behind the weather station, 40°20'407"S, 09°53'228"W; 1 female, PC1 at Prion Cave, 40°20'724"S, 09°53'354"W; 3 females, WA1 west of Admirals, 40°20'380"S, 09°53'980"W; 1 female, SO2 at Sophora river, 40°19'070"S, 09°54'268"W; 2 females, DA1 at dam in the river behind the weather station, 40°20'318"S, 09°53'345"W, fernbush, 100–150 m a.s.l.; 1 female, FS1 at 'First Stop' by the stream along transect from the weather station towards Tafelkop, 40°20'227"S, 09°53'367"W; 2 females, SB2 on the coastal inland cliffs at Seal Beach, 40°20'668"S, 09°53'210"W, tussock grassland; 1 female, TK3 on Tafelkop at stream, 40°19'960"S, 09°53'806"W, fernbush, 350–400 m a.s.l. (BMNH, TCD, ZMBN).

Etymology. Diminutive of Latin *luscinia*, the nightingale, referring to the occurrence on Nightingale Island.**Diagnostic characters.** The species differs from other known females of the genus by having 1–5 setae apically on M₁₊₂. The lack of a supraalar combined with sharply pointed posterolateral corners of tergite X and sternite

VIII without anteromedian setae will separate the species from other described species of the genus except *A. wirthi* (Freeman). From *A. wirthi* the species differs in being much smaller, having fewer dorsocentrals (9–12 as opposed to 14–21), longer costal extension (94–120 μm as opposed to 50–64 μm), fewer setae on abdomen and smaller seminal capsules.

Description. Female ($n = 10$). Total length 1.49–1.80, 1.60 mm. Wing length 0.90–1.01, 0.94 mm. Total length / wing length 1.58–1.80, 1.71. Wing length / length of profemur 2.83–3.08, 2.94.

Coloration. Pale brown with vittae, anterior part of preepisternum, scutellum, and notum dark brown. Legs and abdomen brown.

Head. AR 0.27–0.33, 0.30. Lengths (in μm) of flagellomeres: 64–75, 71; 45–49, 48; 47–53, 49; 43–49, 45; 60–68, 64. Sensilla chaetica about 30 μm long. Temporal setae 4–5, 4 including 1–2, 1 very weak inner vertical and 3 outer verticals. Clypeus with 4–9 setae. Tentorium, stipes and cibarial pump as in Figure 28. Tentorium 79–120, 94 μm long; 9–23, 13 μm wide. Stipes 98–143, 102 μm long; 23–38, 27 μm wide at plate. Palpomere lengths (in μm): 19–26, 22; 28–39, 34; 49–68, 60; 53–60, 59; 71–83, 78. Third palpomere with 1 very weak lanceolate sensilla clavata about 9 μm long. No coronal suture.

Thorax (Fig. 29) Median anteprenotal lobes reduced, 1–4, 2 lateral setae on anteprenotum. Dorsocentrals 9–12, 10; acrostichals 3–6, 4, very weak and not visible in most specimens; prealars 2–4, 3; supraalar seta absent. Scutellum with 6 setae.

Wing (Fig. 30). VR 1.27–1.30, 1.32. Anal lobe reduced. Wing punctuation relatively coarse. Costal extension 94–120, 107 μm long. R_{4+5} ending distal to apex of M_{3+4} ; Cu_1 sinuate. Brachiolum with 1 seta; costa between FR and apex of R_{4+5} with 27–40, 33 non-marginal setae; costal extension with 6–14, 9 non-marginal setae; R with 9–10, 9 setae; R_1 with 4–6, 5; R_{4+5} with 12–15, 13; M_{1+2} with 1–5, 2 apical setae; other veins bare.

Legs. Spur of fore tibia 19–24, 23 μm long; spurs of mid tibia 19–24, 22 μm and 17–23, 20 μm long; of hind tibia 34–41, 39 μm and 15–23, 20 μm long. Width at apex of fore tibia 23–26, 24 μm ; of mid tibia 24–30, 26 μm ; of hind tibia 30–38, 33 μm . Comb of 9–10, 10 setae; longest seta 23–34, 29 μm long; shortest 18–23, 21 μm long. Lengths and proportions of legs as in Table 6.

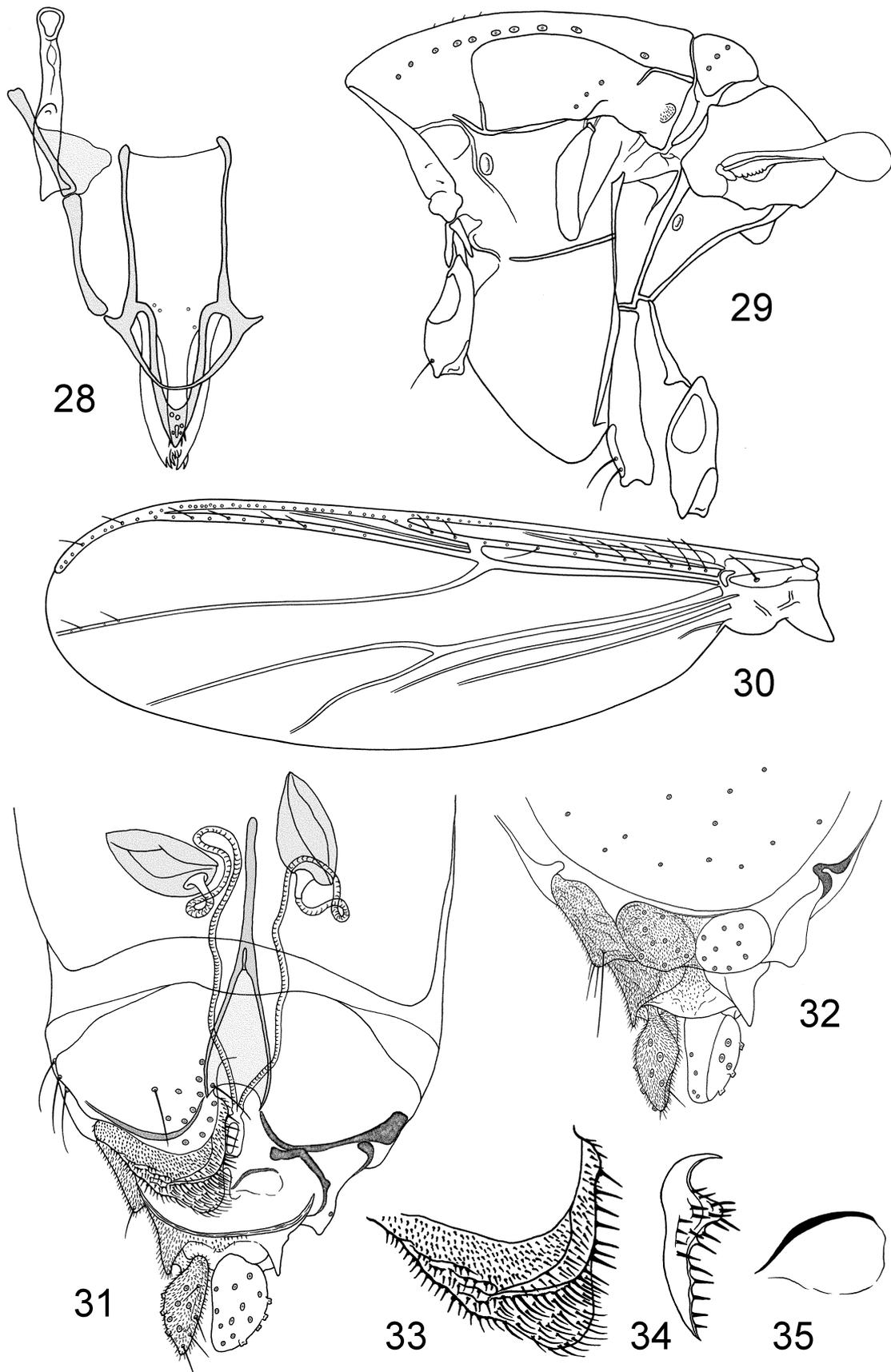
TABLE 6. Lengths (in μm) and proportions of legs of *Allocladius luciniolus* Sæther et Andersen, 2011, female ($n = 10$).

	fe	ti	ta ₁	ta ₂
p_1	293–350, 320	302–373, 328	180–217, 198	99–113, 108
p_2	321–392, 347	340–406, 363	161–194, 171	80–95, 85
p_3	331–397, 357	359–435, 384	208–246, 225	95–113, 105
	ta ₃	ta ₄	ta ₅	LR
p_1	61–76, 71	38–43, 41	33–38, 36	0.57–0.63, 0.61
p_2	57–66, 58	33–43, 38	28–38, 33	0.45–0.49, 0.47
p_3	95–113, 102	33–47, 40	28–43, 36	0.57–0.60, 0.59
	BV	SV	BR	
p_1	3.09–3.49, 3.33	3.17–3.49, 3.28	1.8–2.8, 2.4	
p_2	3.93–4.39, 4.14	4.00–4.35, 4.15	2.3–3.3, 2.7	
p_3	3.31–3.58, 3.44	3.17–3.39, 3.29	2.4–3.6, 3.1	

Abdomen. Tergites with two transverse rows of setae. Number of setae on tergites I–VIII as: 2–6, 4; 9–16, 12; 12–18, 14; 11–21, 15; 12–21, 15; 12–18, 15; 10–14, 13; 12–14, 12. Number of setae on sternites I–VIII as: 0; 0; 0–2, 1; 0–3, 2; 2–9, 5; 3–10, 5; 3–6, 5; 20–30, 24.

Genitalia (Figs 31–35). Gonocoxite low, without distinct posterior projection, with 3 strong setae and a few strong microtrichia. Tergite IX more or less divided, with altogether 10–18, 15 setae. Cercus 60–71, 65 μm long. Segment X with long, sharp posterolateral corners. Seminal capsule 53–64, 55 μm long; 34–41, 39 μm wide; microtrichia not observed; spermathecal ducts with loop, with weak bulbs before common opening. Notum 79–94, 87 μm long.

Pupa and larva. Unknown.



FIGURES 28–35. *Allocladius lusciniolus* Sæther et Andersen, 2011, female. 28—tentorium, stipes and cibarial pump; 29—thorax; 30—wing; 31—genitalia, ventral view; 32—genitalia, dorsal view; 33—ventrolateral lobe; 34—dorsomesal lobe; 35—apodeme lobe.

Remarks. This apparently parthenogenetic species is very similar to *A. wirthi* (Freeman, 1961) from Australia, *A. conigerus* (Freeman, 1954) from eastern, southern and central Africa including Reunion and *A. azoricus* (Storå, 1945) from the Azores, all having numerous non-marginal setae on costa proximal to apex of R_{4+5} and segment X with triangular posterolateral corners (Ferrington & Sæther 2011). *Allocladius lusciniolus* may be the parthenogenetic sister species of *A. azoricus*. Similar pairs of species are found both within *Allocladius* Kieffer [(*A. nanseni* (Kieffer, 1926) and *A. arenarius* (Strenzke, 1960)] and within the closely related *Pseudosmittia* Edwards, 1932. Until recently the present female probably would have been identified as *Parakiefferiella* sp. among other because of the long costal extension. *Allocladius* Kieffer, 1913 recently has been separated from *Pseudosmittia* (Andersen *et al.* 2010; Ferrington & Sæther 2011) and especially the females of both genera may have a long costal extension. We regard it as likely that the cf. *Parakiefferiella* sp. mentioned in Holdgate (1965: 396) from Tristan da Cunha actually refers to *A. lusciniolus*. The specimens from Gough Island were misidentified as *Bryophaenocladus* sp. in Jones *et al.* (2003) because of the relatively heavy punctuation on the wing membrane.

Distribution. The species is known from Gough, Tristan da Cunha and Nightingale Island.

Island biogeography

The chironomid fauna of the South Atlantic islands of Gough, Nightingale and Tristan da Cunha apparently consists of 6 species only and the extensive sampling on all three islands makes it unlikely that many more species will be found. Except for two marine species all species are parthenogenetic. All except *Allocladius lusciniolus* are caught in the intertidal zone in addition to other localities and most likely have arrived by floating debris and vegetation. *Allocladius lusciniolus*, however, are not present in any samples in the intertidal zone and no described species of the genus are known to be terrestrial or marine intertidal. According to Ferrington and Sæther (2011) the most likely explanation for the presence on the island of this species is by means of ballast water. The species is close to *A. wirthi* from Australia, to *A. conigerus* from eastern, central and southern Africa including Reunion and to *A. azoricus* from the Azores. The other species including the marine species all apparently are closer related to African species than to South American species, but that may be a result of better knowledge of the related Afrotropical species.

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