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Pauropoda (Myriapoda) in Australia, with descriptions of new species from Western Australia

U. Scheller

Häggeboholm, Häggesled, S-53194 Järpås, Sweden.

ABSTRACT – In a collection of 4,604 specimens of Pauropoda from the Western Australian jarrah forest 10 genera were represented and 59 species have been identified, 51 of them new species named and described below: four in *Pauropus*, six in *Allopauropus*, 33 in *Decapauropus*, three in *Stylopauropoides*, and one each in *Juxtapauropus, Rabaudauropus, Nesopauropus, Hemipauropus* and *Antichtopauropus*. The genus *Amphipauropus* is reported from Australia for the first time. Harrison's collection from 1914 from New South Wales has been restudied. Keys to the families and genera so far known from Australia are given. All valid species known from Australia, 89 at present, have been listed in a systematic section. The main part of the Australian species is not known from elsewhere.

KEYWORDS: taxonomy, biodiversity, soil fauna, biogeography, endemism

INTRODUCTION

The Pauropoda is a class within the Myriapoda, and are the smallest ones with a body length of 0.5-2 mm and are whitish-brownish, with bifurcate antennae and 8-11 pairs of legs as adults (Scheller 1988, 1990, 2011b). Pauropods seem to be much more diverse than expected, at present 12 families have been described with 47 genera and more than 830 species. They are generally soil-living and widely distributed on all continents.

There are two orders, Hexamerocerata and Tetramerocerata. The former is characterised by 6-segmented telescopic antennae and 10-11 pairs of legs as adults, the latter has 4-segmented not telescopic antennae and 8-10 pairs of legs as adults. All Australian pauropods known so far belong to Tetramerocerata. The Hexamerocerata is tropical and poor in species, only eight known, and has not yet been found in Australia but might occur, at least in the northern part.

The Pauropoda has world-wide distribution and occur in all climatic zones. Because of their cryptozoic living and generally narrow ecological tolerances they may be a most valuable material for studies of the zoogeography and good indicators of the status of forest lands.

MATERIAL AND METHODS

The information presented below, although of variable quality and completeness, may provide a basis for the further investigation of the taxonomy and distribution of the Pauropoda in Australia. The study is two parted, it groups together all the species so far known from Australia into the classification of today but it describes also a large collection from a Western Australian survey at Dwellingup of soil and litter invertebrates in a jarrah forest (Postle et al. 1991). Thanks to Dr Postle the pauropods found, all 4604 specimens, were entrusted to the author. The identification revealed 59 species, 51 of them new species described below: four in *Pauropus,* six in *Allopauropus,* 33 in *Decapauropus*, three in *Stylopauropoides*, and one each in *Juxtapauropus, Rabaudauropus*, *Nesopauropus, Hemipauropus* and *Antichtopauropus*. The main part of our present knowledge of the Australian Pauropoda comes from Dr Postle's collection and the survey of the Tasmanian temperate rain forest published a few years ago (Scheller 2009b, 2011a). These surveys are discussed in some details below after the section Systematics.

To facilitate search of information the species have been listed alphabetically within the genera. The species are presented with information of name, author, and publication data for the original description and later additions, also other literature references and distribution records so far known, and if a species has been collected outside Australia the general distribution too. The descriptive terms are listed in Scheller (1988).

The specimens of the collection from Dwellingup were studied in ethanol using a Zeiss light microscope

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and have been deposited in the Western Australian Museum, Perth (WAM).

Abbreviations: ad. …, subad. … and juv. … = an adult, a subadult or a juvenile specimen with the number of pairs of legs indicated. Body lengths are in mm, otherwise the text refers to relative lengths. In *Allopauropus eumekes* sp. nov. some lengths are given in µm. Range of variation in adult paratype(s) given in brackets (in subadults in *Decapauropus fruticulus* sp. nov. and *Juxtapauropus flexus* sp. nov.)

LITERATURE RECORDS

Though nearly one and a half centuries have passed after the discovery of the Pauropoda in London (Lubbock, 1867) only a limited number of species has been reported from Australia and knowledge of them, from its humble beginning in the nineteenth century has increased slowly and sporadically.

No scientific interest was shown until Launcelot Harrison, the University of Sydney, in 1914 collected and described five species from the Sydney area, Lindfield and Broken Bay (Harrison 1914). He placed four of them in Pauropodidae (*Pauropus amicus, P. australis, P. novae-hollandiae, P. Burrowesi*) and one in Eurypauropodidae (*Eurypauropus speciosus*). His records were then repeated by R.V. Chamberlin (1920), who however placed wrongly the *Eurypauropus* species in Pauropodidae.

Next time the Australian pauropods appear in the literature is when K.W. Verhoeff (1934) expressed his doubt of Harrison's generic placing of his species, and a year later R.S. Bagnall (1935) established a new genus in Eurypauropodidae, *Australopauropus,* for Harrison's *Eurypauropus speciosus*.

With the studies in the 1940s by Professor O.W Tiegs, Melbourne, and Professor P.A. Remy, Brunoy, the study of the Australian pauropods got a well-founded approach. Tiegs described a new species from Victoria (1943) which he also used for his study "The development and affinities of the Pauropoda, based on a study of *Pauropus silvaticus*" (Tiegs 1947), an excellent and detailed study, still of great interest. A few years later P.A. Remy (1949) made a short summing up of the species known and reported five species from Victoria, Tiegs's *Pauropus silvaticus,* the two new species *Stylopauropoides tiegsi* (Remy) and *Stylopauropus brito* Remy and the two wide-spread *Stylopauropus pedunculatus* (Lubbock) and *Pauropus lanceolatus* Remy. The latter two were reported from gardens, for the other three species Remy did not give the habitat, but from Remy's collecting elsewhere it is known that he most often collected in habitats more or less influenced by man. In a later study Remy also accounted for some pauropods collected by G.F. Bornemissza, CSIRO, Canberra, in the early 1950s from Western Australia, partly from Kimberly Research Station, south of Wyndham, and partly from Gnangara, north of Perth. He found there (Remy 1957b) two species from the former place, the new *Kionopauropus lituiger* (Remy) and the wide-spread *Polypauropus duboscqi* Remy, and four species at the latter place, three new species, *Decapauropus notius* Remy, *D. spicatus* Remy, *Stylopauropoides bornemisszai* Remy, and *Juxtapauropus dugdalei* (Remy), the latter earlier known from New Zealand.

In later years two collections of great interest have been accounted for, a large material from the temperate rainforests in Tasmania (Scheller 2009b, 2011a) with 19 species most of them new, discussed in some details after Systematics, and a small but valuable material from the southern part of Western Australia (Scheller 2011a) with *Decapauropus tenuis* Remy and three new species: *Stylopauropoides wungongensis, S. lapicidarius* and *Antichtopauropus brevitarsus*, the latter belonging to a new family. These papers have definitely told us that the pauropods show a high variability in Australia with many probably endemic species, from Western Australia even a new family, Antichtoauropodidae, which might be endemic.

Two more papers have been published in later years but they are of little value and are mentioned here only for the sake of completeness, Greenslade and Scheller 2002, a summing up of the Australian species, unfortunately not correct in all details, and Greenslade 2008, a paper with many errors and not to trust upon.

HARRISON'S COLLECTION

In May 1914 Launcelot Harrison, University of Sydney, discovered the first two species of the Australian Pauropoda which he collected among fallen timber at Lindfield, now a suburb of Sydney, and under a stone at Broken Bay, just north of Sydney, *Pauropus amicus* at both sites and *P. novae-hollandiae* from Broken Bay only. Later he found three more species, *Pauropus australis*, a common species in bark-sheets at Lindfield and Broken Bay, *P. Burrowesi* a single subadult specimen under a stone at Broken Bay, Lobster Beach, and *Eurypauropus speciosus*, four specimens under small stone on mossy bank at Broken Bay. At this time the development of taxonomy and systematics of the Pauropoda was in their beginning so his descriptions are incomplete and his species have partly to be transferred to other genera. Harrison's study is treated below. His material is lodged in Australian Museum, Sydney, and is regrettably in a bad condition. The descriptions are fairly detailed but partly difficult to understand. The type specimens have been restudied and the result is given below. Three of the five species are *incertae sedis* and two are valid. The latter are treated in the systematic section where the descriptions have been amended as far as it has been possible.

Pauropus amicus Harrison, 1914

Pauropus amicus Harrison 1914: 617–620, plate 70, figures 1–11.

MATERIAL EXAMINED

Type specimen (AM KS 042009) from Lindfield, New South Wales, Australia.

REMARKS

Harrison found the species to be "very plentiful among fallen timber at Lindfield". The type specimen is opaque and inaccessible for detailed studies. The drawings in Harrisons's paper (Figures 1–11) show a specimen with (1) the anterior and posterior margins of the sternal antennal branch *s* subsimilar in length, (2) a short-stalked antennal globulus *g*, (3) long in legs with 1st and 9th pair 5-segmented and interposed pairs 6-segmented,(4)4+4 setae on tergite I, 6+6 on tergites II-V and 4+2 on VI, (5) setae on coxa and trochanter furcate, together indicating a placing in *Pauropus*. However, the antennal flagellum F_2 is half of the length of F_3 and the anal plate of peculiar shape, which scarcely is consistent with that genus. Because the pygidium has other strange characters (the tergum and the sternum both thick and posteriorly broadly truncate, setae of tergum and ?anal plate with diverging placing) *P. amicus* has to be placed as *incertae sedis*.

Pauropus australis Harrison, 1914

Pauropus australis Harrison 1914: 620–622, plate 70, figures 12–14.

MATERIAL EXAMINED

Lectotype and paratype specimens (□ AM KS 042588, □ AM KS 042589) from Lindfield, New South Wales, Australia.

DESCRIPTION

Type specimens shrunk, opaque. Only limited measurements were possible and values given below are approximate.

Head. Some setae distinctly clavate, at least a_1 in 1st row, a_2 in 2nd row and both setae in 3rd row.

Antennae. Sternal branch *s* 2.8 times as long as its greatest diameter, globulus *g* short-stalked; seta *q* 0.7 of the length of *s*.

Legs. Tarsus of last pair of legs slender, 4.4 times as long as greatest diameter; proximal seta tapering pointed, with oblique pubescence, 3.3 times as long as distal seta, which is somewhat clavate with short dense pubescence. Seta on trochanter of leg 9 large, furcate, branches clavate-subcylindrical.

Pygidium. The *a*-setae of the pygidial tergum thin, tapering, pointed with oblique-depressed pubescence, a_1 distinctly shorter than a_2 and a_3; *st* cylindrical, the length 0.5 of interdistance. The pygidial sternum has sparse, long pubescence behind the setaeb_3, the latter long, blunt.

The anal plate (Figure 1A here) proportionally large and with four branches directed posteriorly and much more slender than shown in the original description.

REMARKS

Harrison's species belongs with great probability to *Pauropus* but, like preceding species it has to be placed as *incertae sedis* until more material is available.

Pauropus novaehollandiae Harrison, 1914

Pauropus novae-hollandiae Harrison 1914: 622–623, plate 71, figures 15–16).

MATERIAL EXAMINED

Type specimen (KS 041390) from Broken Bay, New South Wales, Australia.

REMARKS

A single adult male collected at Broken Bay under a stone. The type specimen is strongly contracted and opaque. Details besides those given in the original description are not possible to describe. According to Harrison it was related to the South American *Allopauropus inornatus* (Hansen) but the pygidial sternum with the setae b_1 and b_3, the shape of the posterior part of the pygidial tergum and the anal plate with two tapering, submedian, posterior branches point more in direction *Pauropus.* On the other hand the chaetotaxy of the pygidial sternum with the setae b_1+b_3 and the concave inner margins of the mentioned anal plate branches lead more to *Stylopauropoides*. In which genus *Pauropus novaehollandiae* has to be placed cannot be fixed with the available material, it is still an *incertae sedis* species.

Pauropus burrowesi Harrison, 1914

Pauropus burrowesi Harrison 1914: 623–624, plate 71, figure 17.

REMARKS

Species valid, see Systematics, p. 4, under *Decapauropus burrowesi* (Harrison).

Eurypauropus speciosus Harrison, 1914

Eurypauropus speciosus Harrison 1914: 624–627, plate 71, figures 18–21.

REMARKS

Species valid, see Systematics p. 5 under *Samarangopus speciosus* (Harrison).

SYSTEMATICS

Very little collecting has been done in most parts of Australia and as is clear from above there is little basis published on which the composition and size of the Australian pauropod fauna can be estimated. What is known is summarized below in an overview of the species in tabular form followed by a more detailed treatment of the taxa collected.

PAUROPODIDAE

Pauropus Lubbock

1. *P. corniculans* sp. nov.
2. *P. dolosus* Remy, 1956
3. *P. eucalyptus* sp. nov.
4. *P. lanceolatus* Remy, 1956
5. *P. lanceolus* sp. nov.
6. *P. prolixus* sp. nov.
7. *P. silvaticus* Tiegs, 1943
8 *P. vandiemeni* Scheller, 2009

Allopauropus Silvestri

1. *A. affinis* sp. nov.
2. *A. attenuatus* sp. nov.
3. *A. dysmikos* sp. nov.
4. *A. eumekes* sp. nov.
5. *A. foederatus* sp. nov.
6. *A. fraterculus* Scheller, 2009
7. *A. inusitatus* Scheller, 2009
8. *A. maoriorum* Remy, 1956
9. *A. paramaoriorum* sp. nov.

Decapauropus Remy

1. *D. adiaphorus* sp. nov.
2. *D. aegyptiacus* Remy, 1950
3. *D. attenuatus* Scheller, 2009
4. *D. bipertitus* sp. nov.
5. *D. brevitas* sp. nov.
6. *D. burrowesi* (Harrison, 1914)
7. *D. camurus* sp. nov.
8. *D. clavulus* sp. nov.
9. *D. compactus* sp. nov.
10. *D. convexus* Scheller, 2009
11. *D. duplus* sp. nov.
12. *D. finitimus* sp. nov.
13. *D. forcipiformis* sp. nov.
14. *D. fruticulus* sp. nov.
15. *D. fustisetus* sp. nov.
16. *D. gamba* sp. nov.
17. *D. haplotes* sp. nov.
18. *D. heis* Scheller, 2009
19. *D. hispidus* sp. nov.
20. *D. hypopsilos* sp. nov.
21. *D. improcerus* sp. nov.
22. *D. inordinatus* sp. nov.
23. *D. kartotrichos* sp. nov.
24. *D. katernes* sp. nov.
25. *D. multivirgatus* sp. nov.
26. *D. notius* Remy
27. *D. oviformis* sp. nov.
28. *D. proximus* Remy, 1948
29. *D. ramulentus* sp. nov.
30. *D. ramusculus* sp. nov.
31. *D. rhopalotes* sp. nov.
32. *D. sagitta* sp. nov.
33. *D. saltuarius* Scheller, 2009
34. *D. serpentis* sp. nov.
35. *D. sphen* sp. nov.
36. *D. spicatus* Remy, 1957
37. *D. syntomos* sp. nov.
38. *D. tanaos* sp. nov.
39. *D. tenuis* Remy, 1948
40. *D. terrestris* Scheller, 2009
41. *D. terrulentus* sp. nov.
42. *D. trilobionos* sp. nov.
43. *D. ungulatus* Scheller, 2009
44. *D. vegrandis* sp. nov.
45. *D. virgosus* sp. nov.

Juxtapauropus Scheller

1. *J. dugdalei* Remy, 1956
2. *J. flexus* sp. nov.

Kionopauropus Scheller

1. *K. lituiger* (Remy, 1957)

Hemipauropus Silvestri

1. *H. clava* sp. nov.

Stylopauropus Cook

1. *S. brito* Remy, 1949
2. *S. pedunculatus* (Lubbock, 1867)

Stylopauropoides Remy

1. *S. blastema* sp. nov.
2. *S. bornemisszai* Remy, 1957
3. *S. dendrodes* sp. nov.

4. *S. erectus* Scheller. 2009
5. *S. eximiformis* sp. nov.
6. *S. eximius* Scheller, 2009
7. *S. hetaeros* Scheller, 2009
8. *S. quadripartitus* Scheller, 2009
9. *S. ringueleti* Remy, 1962
10. *S. rounsevelli* Scheller, 2009
11. *S. saxicola* Scheller, 2011
12. *S. scissus* Scheller, 2009
13. *S. tiegsi* (Remy, 1956)
14. *S. wungongensis* Scheller, 2011

Rabaudauropus Remy

1. *R. notialis* sp. nov.

Nesopauropus Scheller

1. *N. postlei* sp. nov.
2. *N. tasmaniensis* Scheller, 2009

AMPHIPAUROPODIDAE

Amphipauropus Scheller

1. *Amphipauropus* sp. nov.

POLYPAUROPODIDAE

Polypauropus Remy

1. *P. duboscqi* Remy, 1932

POLYPAUROPODIDAE sp.

ANTICHTOPAUROPODIDAE

Antichtopauropus Scheller

1. *A. brevitarsus* Scheller, 2011
2. *A. relativus* sp. nov.

BRACHYPAUROPODIDAE

Borneopauropus Scheller

1. *B. dignus* (Scheller, 2009)

EURYPAUROPODIDAE

Samarangopus Verhoeff

1. *S. speciosus* (Harrison, 1914)

KEYS

There being no existing manual for identification and because many additional taxa remain to be collected and identified is properly too early to construct such, particularly at species level. However, two keys are presented below, one to the families and the other to the genera known at present, but they must be used with caution.

KEY TO AUSTRALIAN FAMILIES

1. Sternal antennal branch *s* with two globuli joined to a single stalk; anal plate replaced by two posteriorly directed more or less thickened extensions ....Polypauropodidae *(Polypauropus)*

   Sternal antennal branch *s* with one globulus; anal plate of other varying shape 2

2. Tergal antennal branch *t* about as long as its diameter ..... Amphipauropodidae *(Amphipauropus)*

   Tergal antennal branch *t* distinctly longer than its diameter 3

3. Tergite I entire, at least II–IV divided into 4–6 sclerites .... Brachypauropodidae *(Borneopauropus)*

   All tergites entire 4

4. Tergites I and VI covering head and pygidium ..... Eurypauropodidae *(Samarangopus)*

   Tergites I and VI leaving head and pygidium free ... 5

5. Tergites inconsiderably or weakly sclerotized with setae in transversal rows ..... Pauropodidae

   Tergites distinctly sclerotized without true setae but with small protuberances inserted irregularly .... Antichtopauropodidae *(Antichtopauropus)*

KEY TO AUSTRALIAN GENERA IN PAUROPODIDAE

1. Preanal segment much narrower than preceding segment; tergites at least partly with cuticular mesh-pattern ..... *Hemipauropus*

   Preanal segment almost as broad as preceding segment; tergites without cuticular mesh-pattern 2

2. Pygidial sternum with one pair of setae, b_1, or two pairs of setae, b_1+b_3 3

   Pygidial sternum with two pairs of setae, b_1+b_2, or with three pairs of setae, b_1+b_2+b_3 …….. 4

3. Pygidial sternum with setae b_1 only; antennal globulus *g* long-stalked .....*Stylopauropus*

   Pygidial sternum with setae b_1 or b_1+b_3; antennal

globulus g short-stalked ..... *Stylopauropoides*

4. All legs 5-segmented ..... *Nesopauropus*

   1st and last pair of legs in adults 5-segmented, interposed pairs 6-segmented 5

5. Pygidial tergum with additional setae in stage subad. 8 6

   Pygidial tergum without additional setae in stage subad. 8 7

6. Pygidial tergum with one pair of additional setae in subad. 8, d_2 ..... *Allopauropus*

   Pygidial tergum with two pairs of additional setae in subad. 8, d_1+d_2 ..... *Decapauropus*

7. Sternal antennal branch with two setae, q+q' ..... *Rabaudauropus*

   Sternal antennal branch with one seta, q 8

8. Pygidial sternum with two pairs of setae, b_1+b_3 ..... *Juxtapauropus*

   Pygidial sternum with two pairs of setae, b_1+b_2 9

9. Antennal globulus *g* long-stalked ..... *Kinopauropus*

   Antennal globulus *g* short-stalked ..... *Pauropus*

Family Pauropodidae Lubbock, 1867

Genus *Pauropus* Lubbock, 1867

Pauropus Lubbock, 1867: 181–185, plate 10, figures 1–19.

TYPE SPECIES

Pauropus huxleyi Lubbock, 1867, by original designation.

Pauropus corniculans sp. nov.

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Figure 1B–I

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in litter, 29 July 1981 (WAM T125466).

Paratypes

Australia: ***Western Australia*:** 1 ad. 9(□), same data as holotype except in soil, 21 April 1981 (WAM T125467); 1 ad. 9(□), same data except in soil, 29 May 1981 (WAM T125468; 1 ad. 9(□), same data except in soil, 28 July 1981 (WAM T125469).

Non-types

Australia: ***Western Australia*:** 1 juv. 3, same data except in soil, 18 August 1980; 1 juv. 6, same data except 25 July 1980; 2 juv. 6, 4 juv. 5, same data except 20 September 1980; 1 ad.9(□), 2 juv. 3, same data except 25 May 1981; 1 ad.9(□), same data except 29 July 1981; 1 subad. 8(□), same data except 21 September 1981.

DIAGNOSIS

Pauropus corniculans sp. nov. may be connected with *P. montanus* Scheller from New Caledonia (Scheller, 1993). Good distinguishing characters are the shape of the posterolateral setae of the tergal side of the head, clavate in *P. corniculans*, cylindrical in *P. montanus*, the posteriomedian lobe of the pygidial tergum, large subtriangular with median point, not low with shallow median incision, and the lateral appendages of the anal plate, with broad basal part, not thin cylindrical.

DESCRIPTION

Adult male holotype (and paratypes)

Length: 1.05(-1.31) mm.

Head (Figure 1B): tergal setae clavate, with short pubescence, lateral and posterolateral setae longest. Relative lengths of setae, 1st row: $a_1 = a_2 = 10$; 2nd row: $a_1 = 11–13$, $a_2 = 15$, $a_3 = (13–)14$; 3rd row: $a_1 = (9-)10$, $a_2 = 10$; 4th row: $a_1 = (12–)13$, $a_2 = (19–)24$, $a_3 = 16(–18)$, $a_4 = 13(–14)$; lateral group setae not studied. Ratio a_1/a_1-a_1 in 1st row 1.4, 2nd row (0.5-)0.6, 3rd row 1.3(–1.4), 4th row 1.2. Length of temporal, organs 0.6 of shortest interdistance. Small pistil in posterior part of temporal organs. Head cuticle glabrous.

Antennae (Figure 1C): segment 4 with 5 cylindrical, densely annulate setae, *u* rudimentary; their relative lengths: $p = 10$, $p' = 6$, $p'' = r = 2(–3)$. Tergal seta *p* (1.1–)1.2 times as long as tergal branch *t*. The latter branch very slender, almost cylindrical, (4.2–)4.8(–5.0) times as long as its greatest diameter, (1.2–)1.4 times as long as sternal branch *s*, that branch 2.7(–2.9) times as long as its greatest diameter; anterodistal corner more truncate than posterodistal one. Seta *q* as *p* of 4th segment, 0.6(–0.7) of the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, bs_1 (5–)6(–7), $F_2 = 35(–42)$, $bs_2 = 5(-6)$, $F_3 = (83–)90$, $bs_3 = 6(–7)$, F_1 (2.5–)2.9(–3.2) times as long as *t*, F_2 and F_3 (1.4–)1.6 and (2.9–)3.2(–3.3) times as long as *s* respectively. Distal calyces helmet-shaped, distal part of flagella axes widened only just below calyces. Globulus g (1.3–)1.4 times as long as wide, ~12 bracts, capsule with flattened bottom; width of g 0.6(–0.7) of the diameter of t. Bracts faintly pubescent, other parts of antennae glabrous.

Trunk (Figure 1D, E): setae of collum segment (Figure 1D) furcate, submedian setae with main branch broad, blunt, densely pubescent, secondary branch short, cylindrical, glabrous; sublateral setae 1.8(–2.1) times as long as submedian setae; sternite process with small anterior incision (or blunt); appendages barrel-shaped with flat caps, process and appendages with short dense pubescence.

Setae on anterior and middle tergites a little clavate, on posterior tergites cylindrical; 4+4 setae on tergite I, 6+6 on II-IV, 6+4 on V, 4+2 on VI. Submedian posterior

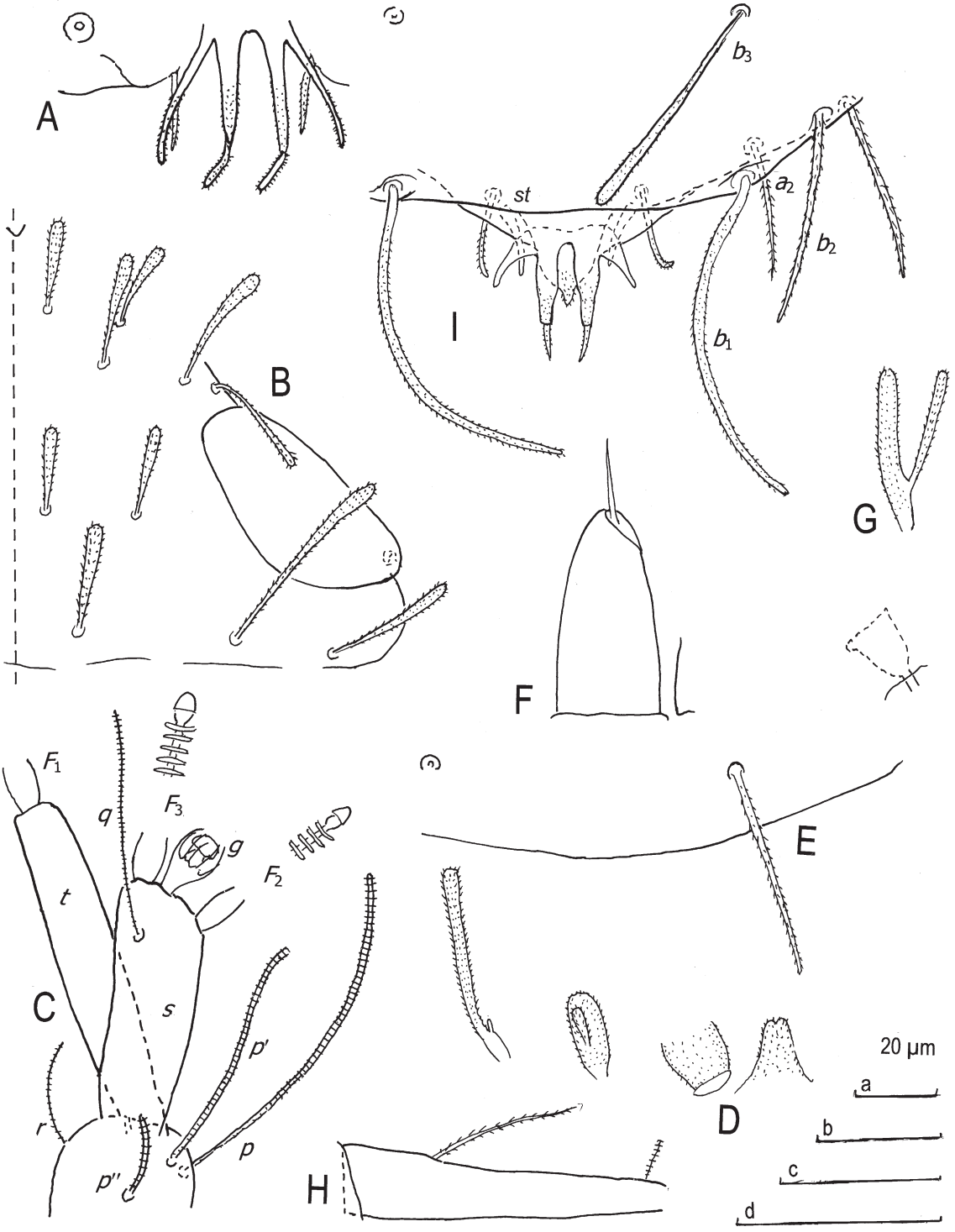

FIGURE 1 A, *Pauropus australis* Harrison, holotype, anal plate. B–H, *Pauropus corniculans* sp. nov., B–E, G, H holotype ad.9(□), F paratype ad. 9(□): B, head, median and right part, tergal view; C, right antenna, sternal view; D, collum segment, median and right part, sternal view; E, tergite VI, right posteriomedian part; F, left genital papilla, anterior view; G, seta on trochanter of leg 9; H, tarsus of last pair of legs; I, posteriomedian and right part of pygidium, sternal view. Scale a: Figure H; b: Figures B, D–G, I; c: Figure C; d: Figure A.

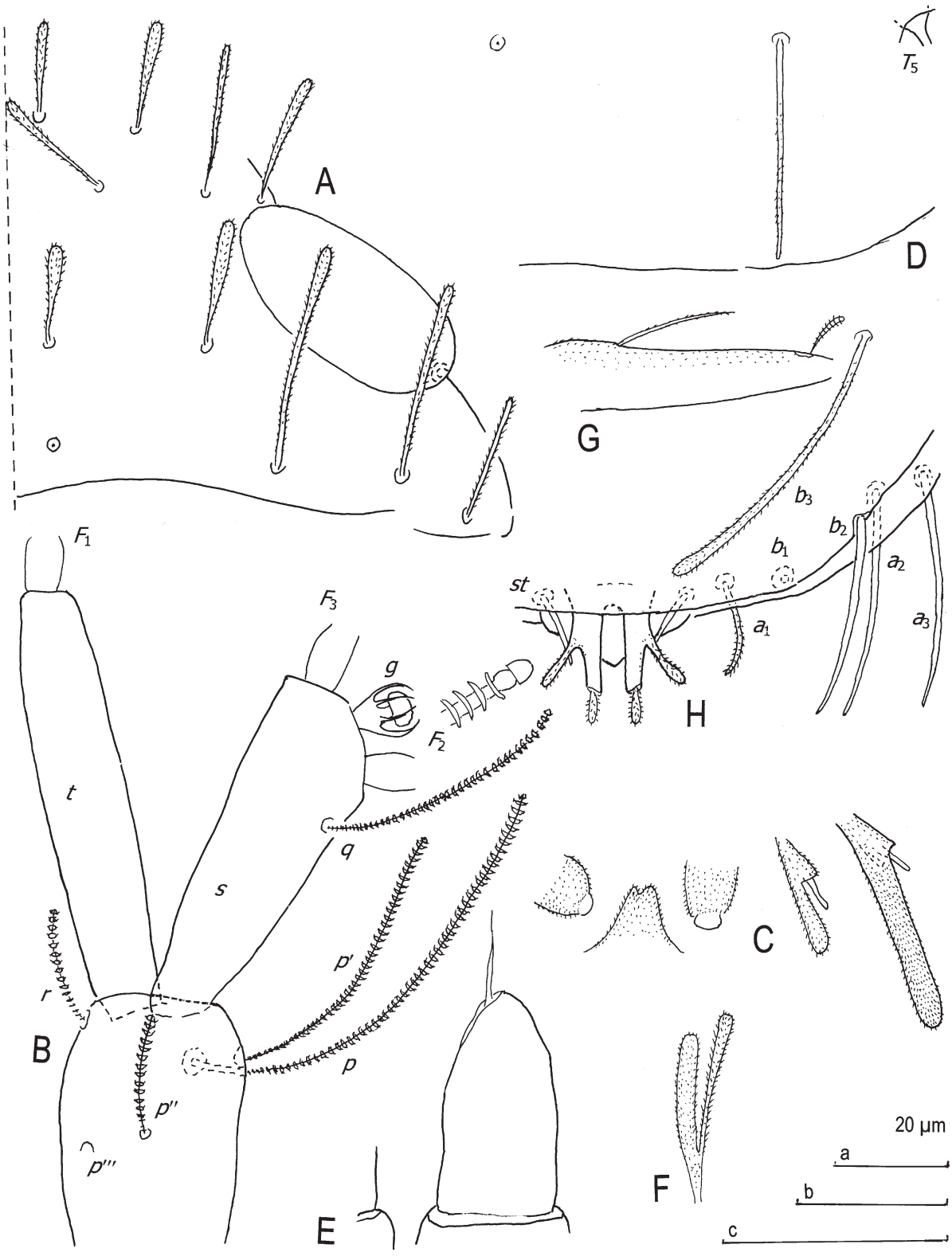

FIGURE 2 *Pauropus eucalyptus* sp. nov., holotype ad. 9(□): A, head, median and right part, tergal view; B, right antenna, sternal view; C, collum segment, median and right part, sternal view; D, tergite VI, posteriomedian part; E, genital papilla, left side, anterior view; F, seta on trochanter on 9th pair of legs; G, tarsus of 9th pair of legs; H, posteriomedian and right part of pygidium, sternal view. Scale a: Figure G; b: Figures D, E; c, Figures A–C, F, H.

setae on VI (Figure 1E) 0.7(–0.8) of interdistance and 2.3(–2.9) times as long as pygidial setae a_1.Anterior tergites granular-faintly pubescent, posterior ones with sparse but distinct pubescence.

Bothriotricha: relative lengths: T_1 = 100, T_2 = (109–)115(–131), T_3 = (127–)128(–141), T_4 = 120(–168), T_5 = (177–)184(–234); all with thin simple axes and very short pubescence.

Genital papillae (paratype) (Figure 1F): basal half cylindrical, distal half roundly conical, papillae twice longer than the greatest diameter, seta 0.4 of the length of papilla.

Legs: seta on coxa and trochanter of leg 9 (Figure 1G) furcate with cylindrical, blunt, branches with short pubescence. Corresponding setae on more anterior legs with rudimentary secondary branch. Tarsus of leg 9 (Figure 1H) slender tapering, (4.7–)5.0 times as long as its greatest diameter. Setae subcylindrical, proximal seta cylindrical, tapering with oblique pubescence, distal one cylindrical, blunt, and densely striate, proximal seta (0.4–)0.5 of the length of tarsus and (2.5–)3.3(–3.4) times as long as distal seta.

Pygidium (Figure 1 I).

Tergum: posterior margin with broad, rounded lobe between a_2 and below it between *st* a triangular lobe with short pubescence, lobe with convex sides and small posteriomedian point. Relative lengths of setae: a_1 = 10, a_2 = (15–)16(–19), a_3 = (19–)20(–25), *st* = 7(–9); *a*-setae cylindrical with oblique pubescence, somewhat diverging, a_1 and *st* curved outward, the latter also tapering. Distance a_1-a_1 2.0(–2.5) times as long as a_1; distance a_1–a_2 1.3(–1.6) time as long as distance a_2-a_3; distance *st*–*st* 1.9(–2.0) times as long as *st* and (0.8–)0.9 of distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 straight. Relative lengths of setae (pygidial a_1 = 10): b_1 = 53(–68), b_2 = 29(–34), b_3 = (29–)38(–41); setae pubescent, b_1 cylindrical blunt, b_2 cylindrical, tapering, b_3 straight, clavate; b_1 (1.3–)1.5 times as long as interdistance; b_2 (1.9–)2.0(–2.1) times as long as distance b_1–b_2, b_3 0.8(–0.9) of distance b_2–b_3.

Anal plate 4-branched, broadest anteriorly, (1.1–)1.4 times as long as broad, median incision deep, U-shaped anteriorly; submedian branches tapering, each with a tapering appendage (0.4–)0.5 of the length of the plate, somewhat converging; lateral branches short, tapering, half of the length of submedian branches and with broad base, somewhat curved inward. Branches and appendages of plate with short pubescence.

ETYMOLOGY

From the Latin corniculans = horned (referring to the shape of the lateral processes of the anal plate).

Pauropus dolosus Remy, 1956

Pauropus dolosus Remy, 1956: 18–19, figure 3: 1–5; Greenslade 2008: 159; Scheller 2009b: 322.

DISTRIBUTION

Tasmania, in the southeast: Sandspit River, Tasman Peninsula and Mt Mangana on Bruny Island.

GENERAL DISTRIBUTION

Known outside Australia only from the type locality in New Zealand.

Pauropus eucalyptus sp. nov.

urn:lsid:zoobank.org:act:250F2903-7615-4892-AA77-7AED7CA49B5A

Figure 2A–H

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in litter, 28 July 1981 (WAM T125470).

Paratypes

Australia: ***Western Australia*:** 2 ad. 9(□, □), c. 22 km SE. of Dwellingup, Yarragil Brook site (4PM), in litter, 20 July 1981 (WAM T125471); 2 ad. 9(□), same data as above (site DC), 28 September 1981 (WAM T125472).

Non-types

Australia: ***Western Australia*:** 1 subad.8(□), Yarragil Brook site, in litter, 23 October 1980; 1 juv. 6, same data except 20 November 1980; 1 ad. 9(□), 2 juv. 5, same data except 19 May 1981; 2 juv. 5, same data except 15 April 1981; 2 juv. 6, 11 juv. 3, same data except in soil, 18 July 1980; 2 ad. 9(□), same data except 15 September 1980; 1 juv. 5, same data except 20 September 1980; 1 juv. 5, same data except 20 November 1980; 4 juv. 3, same data except 23 October 1980.

DIAGNOSIS

P. eucalyptus sp. nov. seems to be connected with *P. satelles* Remy from South Africa (Remy, 1955b). They can be distinguished by the shape of the anal plate, submedian branches not widened distally and cut obliquely in *P. eucalyptus,* widened distally and cut squarely in *P. satelles*, the lateral branches clavate and pubescent, not cylindrical and glabrous, and by the shape of the genital papillae, with cylindrical proximal half, not conical.

DESCRIPTION

Adult male holotype (and paratypes)

Length: (0.98–)1.20 mm.

Head (Figure 2A): tergal setae with short pubescence, long, clavate, only a_4 of 4th row and lateral group setae cylindrical. Relative lengths of setae, 1st row: a_1 = 10, a_2 = 11(–15); 2nd row: a_1 = (12–)14, a_2 = (15–)17,a_3 = (13–)15; 3rd row: a_1 = 11, a_2 = (12–)14; 4th row: a_1 = ?(11–13), a_2 = (20–)25, a_3 = (19–)22, a_4 = (12–)14; lateral group setae not studied. Ratio a_1/a_1-a_1 in 1st row 1.3(–1.7), 2nd row 0.6(–0.7), 3rd row 1.3(–1.8), 4throw ?(1.5–1.7). Length of temporal organs (0.5–)0.6 of the length of interdistance; small pistil near posterior margin. Head cuticle glabrous.

Antennae (Figure 2B): segment 4 with 6 cylindrical

densely annulate setae, *p‴* and *u* rudimentary. Relative lengths of setae :*p* = 10, *p′* = 6(-7), *p″* = *r* = 3. Tergal seta *p* 1.0(–1.1) times as long as tergal branch *t*. The latter branch slender, somewhat fusiform, (5.6–)5.7 times as long as its greatest diameter; anterodistal corner more truncate than posterodistal one. Seta *q* as *p* of 4th segment 0.8 of the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = (3–)5, F_2 = (35–)44,bs_2 = (3–)4; F_3 = (79–)88, bs_3 = 5(–7). F_1 (2.2–)2.5(–2.7) times as long as *t*, F_2 and F_3 1.5 and (2.7–)3.1(–3.2) times as long as *s* respectively. Distal calyces helmet-shaped; distal part of flagella axes widened only between calyx and first lamella. Globulus *g* with thick stalk, (1.3–)1.4 times as long as wide, ~7 bracts, capsule with flattened bottom; width of *g* (0.6–)0.7 of greatest diameter of *t*. Bracts faintly pubescent, other parts of antennae glabrous.

Trunk (Figure 2C, D): setae of collum segment (Figure 2C) furcate, main branch blunt, densely pubescent, secondary branch short, cylindrical, glabrous; sublateral setae (1.4–)1.9 times as long as submedian ones; sternite process with anterior incision; appendages barrel-shaped; process and appendages with short pubescence.

Setae on anterior tergites as posteriolateral setae on head, on posterior tergites about twice longer than on anterior ones; 4+4 setae on tergite I, 6+6 on II-IV, 6+4 on V, 4+2 on VI. Submedian posterior setae on VI (Figure 2D) (0.7–)0.8 of interdistance and (2.0–)2.4 times as long as pygidial setae a_1. Tergites faintly pubescent.

Genital papillae (Figure 2E): almost twice longer than greatest diameter, basal half cylindrical, distal half roundly conical, seta 0.4 of the length of papilla.

Bothriotricha: relative lengths: T_1 = 100, T_2 = 110(–124), T_3 = 115(–134), T_4 = 156(–160), T_5 = 183(–247); axes thin, simple, with very short pubescence..

Legs (Figure 2F, G): setae on coxa and trochanter (Figure 2F) of leg 9 furcate with blunt branches having short pubescence, main branch cylindrical, secondary branch clavate. Corresponding setae on more anterior legs with rudimentary secondary branch. Tarsus of leg 9 (Figure 2G) (4.6–)5.0(–5.5) times as long as its greatest diameter, slender, tapering, with sparse but distinct pubescence on tergal side, very short on sternal one. Proximal seta thin tapering pointed, with short pubescence, distal one densely annulate. The former (0.4–)0.5 of the length of tarsus and 2.6(–3.0) time as long as distal seta.

Pygidium (Figure 2H).

Tergum: glabrous, posterior margin rounded, large lobe with median triangular part between *st*. Relative lengths of setae: a_1 = 10, a_2 = (20–)21, a_3 = (18–)23, *st* = 7(–8); setae cylindrical, somewhat tapering distally, a_1 distinctly pubescent, a_2 and a_3 faintly so, *st* glabrous, *a*-setae curved inward, *st* almost straight, converging, glabrous. Distance a_1–a_1 1.7(–2.0) times as long as a_1; distance a_1–a_2 (2.1–)2.5 times as long as distance a_2–a_3; distance *st*–*st* (1.7–)1.8(–1.9) times as long as *st* and (0.7–)0.8 of distance a_1–a_1.

Sternum: posterior margin between b_1 straight. Relative lengths of setae (pygidial a_1 = 10): b_1 = 47, b_2 = (17–)19(–21), b_3 = (25–)27(–28): b_1 and b_2 tapering, blunt, faintly pubescent, b_3 cylindrical, thickest distally, distinctly pubescent; b_1 1.4(–1.6) times as long as interdistance, b_2 (1.7–)1.9 times as long as distance b_1-b_2, b_3 0.6(–0.7) of distance b_2-b_3.

Anal plate 4-branched, broadest anteriorly, (1.4–)1.5 times as long as broad, median posterior incision deep, U-shaped anteriorly, submedian branches almost cylindrical, cut obliquely, each with one clavate (- ovoid), distinctly pubescent appendage, the latter 0.3 of the length of plate; lateral branches straight, clavate, with short pubescence, lateral branches not reaching longer than submedian branches. Plate faintly pubescent.

ETYMOLOGY

From the New Latin Eucalyptus = a genus in the myrtle family (referring to the occurrence in *Eucalyptus* forest).

***Pauropus lanceolatus* Remy, 1956**

Pauropus lanceolatus Remy, 1956d: 109; Remy, 1949: 56; Greenslade and Scheller 2002: 15, 16.

DISTRIBUTION

The species is widely distributed on the northern hemisphere: U.S.A., Norway, Sweden, Finland, Denmark, Great Britain, Germany, Austria, France, Italy. In Australia, a single specimen from a garden has been found in Melbourne, Victoria. It is probably introduced.

***Pauropus lanceolus* sp. nov.**

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Figure 3A–G

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 29 December 1980 (WAM T125473).

Paratypes

Australia: ***Western Australia*:** 2 ad. 9(□, □), Murray River site, in soil, 27 May 1981 (WAM T125474); 2 ad. 9(□), Murray River site, in litter, 28 May 1981 (WAM T125475).

Non-types

Australia: ***Western Australia*:** 1 subad. 8(□), 3 juv. 6, 3 juv. 5, 3 juv. 3, same data except 25 July 1980.

DIAGNOSIS

Some characters in the antennae and pygidium indicate close relationship with *P. salvatgei* Remy from Madagascar (Remy, 1960b) but the two species can easily be distinguished by the shape of the pygidial *a*-setae, cylindrical, tapering in *P. lanceolus* sp. nov., lanceolate in *P. salvatgei,* a_1 also hook-like distally, not straight, and

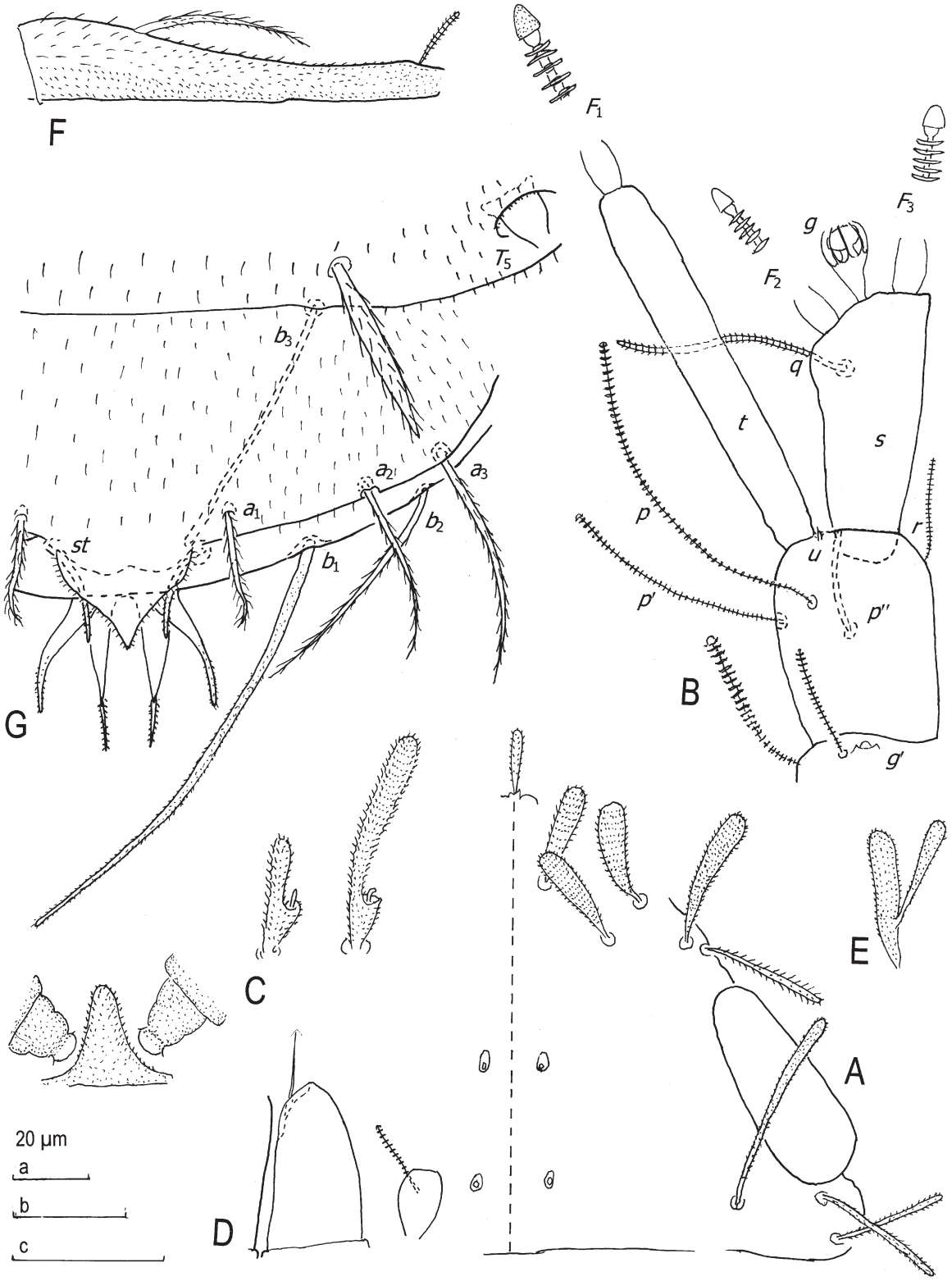

FIGURE 3 *Pauropus lanceolus* sp. nov., holotype, ad. 9(□): A, head median and right part, tergal view; B, right antenna, tergal view; C, collum segment, median and left part, sternal view; D, genital papillae and seta on coxa of left leg 2, anterior view; E, seta on trochanter of 9th pair of legs; F, tarsus of 9th pair of legs; G, right posterior part of tergite VI and posteriomedian and right part of pygidium, tergal view. Scale a: Figures D–F; b: Figure A; c: Figures B, C, G.

by the shape of the branches of the anal plate, tapering and with thin, tapering, posterior appendage, not subcylindrical with lanceolate appendage.

DESCRIPTION

Adult male holotype (and paratypes)

Length: 1.05(–1.31) mm.

Head (Figure 3A): anterior tergal setae clavate, sublateral ones only weakly, lateral ones cylindrical, all densely pubescent, pubescence strongest on a_3 of 2nd row. Relative lengths of setae, 1st row: a_1 = 10, a_2 = (10–)11, 2nd row: a_1 = 11(–13), a_2 = (13–)14(–16), a_3 = 13(–14); 3rd row: a_1 = (9), a_2 = (11); 4th row: a_1 = (10–11), a_2 = (20–)22, a_3 = 15(–18), a_4 = (11–)12(–14); lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row (1.4–)1.5, 2nd row (0.7–)0.8, 3rd row (1.4–1.5), 4th row (1.3–1.5). Temporal organs proportionately small, length 0.6 of shortest interdistance. Head cuticle minutely granular.

Antennae (Figure 3B): segment 3 with rudimentary globulus *g′*. Segment 4 with 5 setae all cylindrical, blunt, densely annulate, *u* rudimentary; their relative lengths: p = 10, p' = (6–)7, p'' = r = (2–)3. Tergal seta *p* as long as tergal branch *t*. The latter branch very slender, almost cylindrical, 5.6(–6.9) times as long as its greatest diameter, (1.3–)1.7 times as long as sternal branch *s*, that branch 2.7(–3.1) times as long as its greatest diameter; anterodistal corner truncate. Seta *q* as *p* of 4th segment, as long as the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 6(–7), F_2 = 37(–39), bs_2 = (4–)5; F_3 = 77(–78), bs_3 = (5–)6. F_1 (2.8–)2.0 times as long as *t*, F_2 and F_3 (1.2–)1.4(–1.6) and (2.9–)3.0 times as long as *s* respectively. Distal calyces roundly conical; distal part of flagella axes widened only just below calyces. Globulus *g* 1.4 times as long as wide, stalk thin, ~8 bracts, capsule somewhat flattened; width of *g* 0.7 of greatest diameter of *t*. Bracts faintly pubescent, other parts of antennae glabrous.

Trunk (Figures 3C, G): setae of collum segment (Figure 3C) furcate, main branch thick, blunt, densely pubescent, secondary branch rudimentary, cylindrical, glabrous; sublateral seta 1.9 times as long as submedian one; sternite process large, anterior part blunt; appendages tapering with glabrous caps; process and appendages with short pubescence.

Setae on anterior tergites somewhat clavate, anterolateral setae on posterior tergites about twice longer than corresponding setae of tergite I; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 3G) lanceolate, with depressed, strong pubescence, setae 0.5(–0.6) of interdistance and 1.6(–1.7) times as long as pygidial setae a_1. Anterior tergites faintly pubescent, posterior ones with distinct but sparse pubescence.

Bothriotricha: relative lengths: T_1 = 100, T_2 = (108–)113, T_3 = (124–)125, T_4 = (133–)156, T_5 = 189(–232); all with thin, simple axes and oblique pubescence.

Genital papillae (paratype) (Figure 3D): roundly conical, 1.7 times as long as greatest diameter, inner side straight, seta thin, 0.5 of the length of papilla.

Legs (Figures 3E, F): setae on coxa and trochanter (Figure 3E) of leg 9 furcate with blunt branches with very short pubescence, main branch broad, cylindrical, secondary branch clavate. Corresponding setae on more anterior legs with rudimentary secondary branches except on coxa of leg 2 in males (Figure 3D), tarsus (Figure 3F) very slender in distal half, with sparse, but distinct pubescence on tergal side, very short on sternal side. Proximal seta tapering, pointed, with strong, oblique–depressed pubescence, distal seta cylindrical, blunt, striate; proximal seta 0.4 of the length of tarsus and 2.5(–2.6) times as long as distal seta.

Pygidium (Figure 3G).

Tergum: posterior margin rounded and with a large, triangular lobe with convex lateral margins between *st*. Relative lengths of setae: a_1 = 10, a_2 = (15–)17, a_3 = 18(–21), *st* = 5(–8); *a*-setae cylindrical, tapering, somewhat diverging, with strong, oblique–depressed pubescence, a_1 hook-like distally, a_1 and a_3 curved inward, *st* thin tapering, with short pubescence, curved outward and converging. Distance a_1-a_1 1.5(–1.8) times as long as a_1; distance a_1–a_2 1.3(–1.8) times as long as distance a_2–a_3; distance *st*–*st* 1.8(–2.1) times as long as *st* and (0.8–)0.9 of the length of distance a_1–a_1. Tergum with distinct but sparse pubescence.

Sternum: posterior margin between b_1 rounded. Relative lengths of setae (pygidial a_1 = 10): b_1 = (38–)42, b_2 = (19–)22, b_3 = (23–)24(-25); b_1 cylindrical, tapering, blunt, with short pubescence, b_2 cylindrical, tapering, pointed, with strong depressed pubescence, converging, b_3 straight, cylindrical; b_1 (1.4–)1.7 times as long as interdistance; b_2 (1.9–)2.1 times as long as distance b_1–b_2, b_3 (as long as –)0.8 of distance b_2–b_3.

Anal plate 4-branched, broadest anteriorly, about as broad as long, median incision deep, a little V-shaped, with rounded bottom, submedian branches tapering, pointed distally, each with one thin, posteriorly directed appendage with short pubescence, its length 0.4 of the length of the plate; lateral branches tapering, curved inward, somewhat longer than submedian branches, short pubescence distally.

ETYMOLOGY

From the Latin lancea = light spear (referring to the lanceolate setae of the tergite VI).

***Pauropus prolixus* sp. nov.**

urn:lsid:zoobank.org:act:D1E0E224-166E-45F5-83C7-7CD7B63FEA95

Figure 4A–H

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 27 May 1981 (WAM T125476).

Paratypes

Australia: *Western Australia*: 1 ad. 9(□), same data

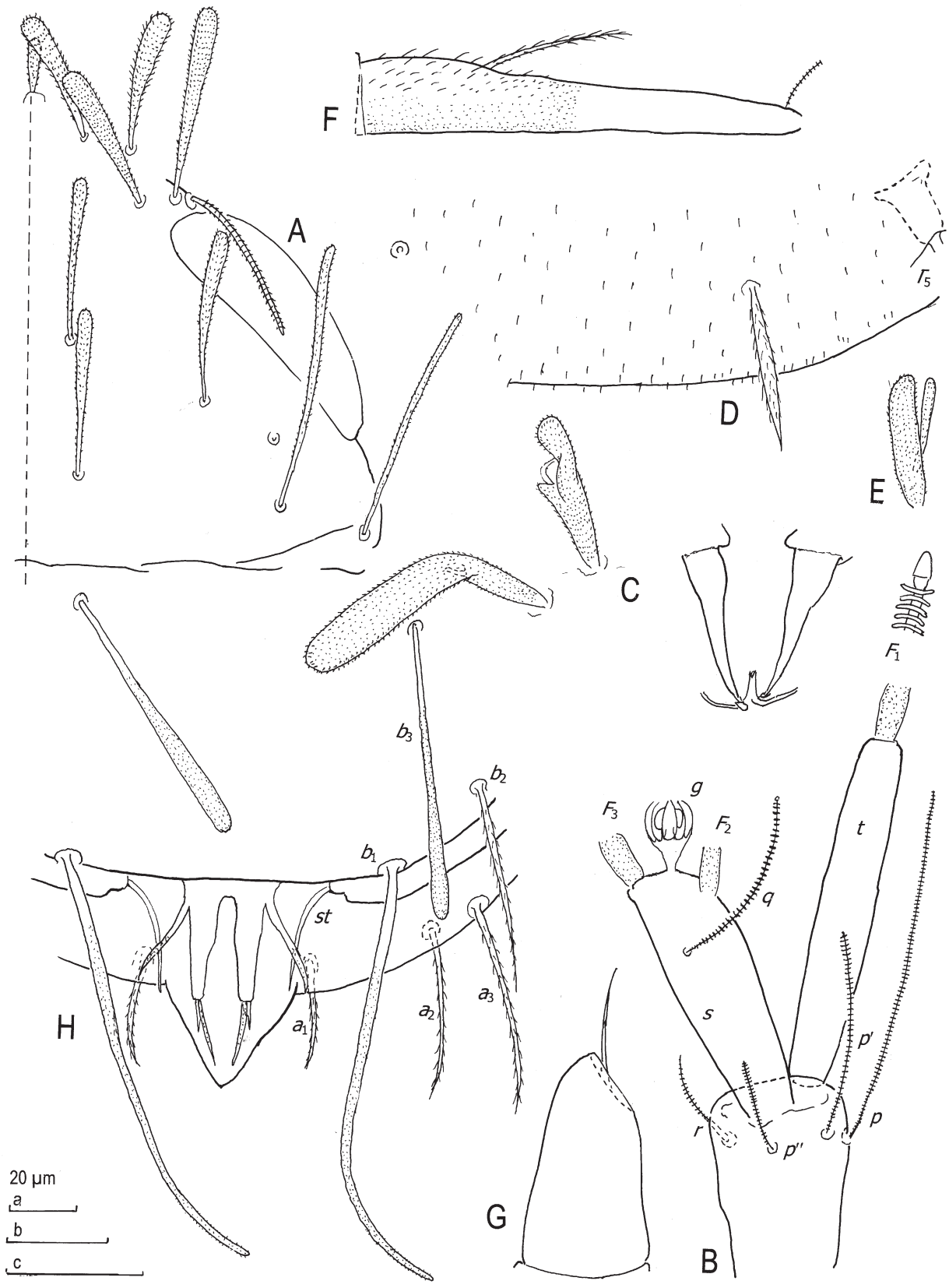

FIGURE 4 *Pauropus prolixus* sp. nov. holotype ad. 9(□): A, head, median and right part, tergal view; B, right antenna, sternal view; C, collum segment, median and right part, sternal view; D, tergite VI, posteriomedian part; E, left genital papilla, anterior view; F, seta on trochanter of leg 9; G, tarsus of leg 9; H, posteriomedian and right part of pygidium, sternal view. Pubescence only partly drawn in G. Scale a: Figures B, F, G; b: Figure E; c: Figures A–D, H.

as holotype (WAM T125477); 1 ad. 9(□), same data except 25 July 1980 (WAM T125478).

Non-type

Australia: ***Western Australia*****:** 1 juv. 3, same data as holotype.

DIAGNOSIS

In the shape of the head setae, antennae and anal plate *P. prolixus* sp. nov. shows affinities to *P. daviesi* Scheller from the subantarctic Crozet Islands (Scheller 1974) and they are also alike in the shape of the posterior lobe of the pygidial tergum. They can be distinguished by the shape of the posterior setae of tergite VI, narrowly claviform in *P. prolixus,* thin in *P. daviesi*, the shape of the *st*, thin, pointed, not blunt, and the posterior part of the anal plate, with tergal pointed appendage, not without. Similarities are obvious too in direction *P. lawrencei* Remy from South Africa (Remy 1955b) but they are dissimilar in several characters as the shape of the posterior lobe of the pygidial tergum, long and triangular in *P. prolixus*, low and rounded in *P. lawrencei*, the shape of the pygidial setae a_1, thin pointed, not thick clavate, and the posterior part of the anal plate, with submedian branches rounded distally, not cut squarely. Among the species described from Madagascar by Remy (1956d) *P. fallaciosus* may be the one most close but it differs as to both the shape of the setae on tergite VI and the posterior lobe of the pygidial tergum, and also as to the proportions of the tergal antennal branch and the pygidial setae a_2/a_3.

DESCRIPTION

Adult female holotype (and paratype)

Length: 1.05(–1.31) mm.

Head (Figure 4A): setae long, anterior and submedian ones clavate, lateral ones cylindrical, blunt, all with short pubescence. Relative lengths of setae, 1st row: a_1 = 10, a_2 = 11, 2nd row:a_1 = 11(–12), a_2 = (15–)16,a_3 = (13–)14, 3rd row: a_1 = (13–)14, a_2 = 14, 4th row: a_1 = 14,a_2 = ?(22), a_3 = (19–)22,a_4 = (15–)19; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 1.2, 2nd row 0.7, 3rd row 1.8, 4th row 1.6(–1.7). Temporal organs narrow in tergal view, as long as shortest interdistance. Head cuticle glabrous.

Antennae (Figure 4B): segment 4 with 5 cylindrical, densely annulated setae, *r* distinctly tapering, pointed, *u* rudimentary; their relative lengths: p = 10, p' = 6, p'' = r = 3. Tergal seta *p* as long as tergal branch *t*. The latter branch very slender, almost cylindrical, 5.9(–6.7) times as long as its greatest diameter, 1.3(–1.4) times as long as sternal branch *s*, that branch (3.2–)3.3(–3.8) times as long as its greatest diameter; anterodistal corner more truncate than posterodistal one. Seta *q* as *p* of 4th segment, (0.7–)0.8 of the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 5, F_2 = 33(–42), bs_2 = (4–)5, F_3 = 63(–87), bs_3 = 5. F_1 2.8 times as long as *t,* F_2 and F_3 1.3(–1.5) and (2.4–)3.1 times as long as *s* respectively. Distal calyces bullet-shaped; distal part of flagella axes widened only between calyx and first lamella. Globulus *g* with thin stalk, (1.3–)1.4 times as long as wide, ~12 bracts, capsule with flattened bottom; width of *g* 0.7 of greatest diameter of *t.* Bracts faintly pubescent, other parts of antennae glabrous.

Trunk (Figure 4C, D): setae of collum segment (Figure 4C) furcate, main branch broad blunt, densely pubescent, secondary branch short, cylindrical, glabrous; sublateral setae placed behind submedian ones, 1.7 times as long as the latter; sternite process proportionately very small, narrow anterior part with incision; appendages long, extended, tapering in posterior direction, caps small; process and appendages glabrous.

Setae on anterior tergites as posteriolateral setae on head, on posterior tergites about twice longer than on anterior ones; 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Submedian posterior setae on VI (Figure 4D) lanceolate, with depressed pubescence, 0.5(–0.6) of interdistance and 1.5(–1.7) times as long as pygidial setae a_1. Anterior tergites faintly pubescent, posterior ones with sparse but distinct pubescence.

Bothriotricha: relative lengths: T_1 = 100, T_2 = 111(–118), T_3 = (123–)144(–167), T_4 = (159–)175, T_5 = (212–)217 and 233; all with thin simple axes and short pubescence.

Legs (Figure 4E, F): setae on coxa and trochanter (Figure 4E) of leg 9 furcate with blunt, branches with very short pubescence, main branch large, cylindrical, secondary branch shorter and thinner, clavate. Corresponding setae on more anterior legs with rudimentary secondary branch. Tarsus of leg 9 (Figure 4F) slender tapering, (5.2–)5.9 times as long as its greatest diameter, with sparse but distinct pubescence on tergal side, very short on sternal one. Proximal seta subcylindrical, tapering, with oblique pubescence, distal seta thinner cylindrical, blunt, densely striate, proximal seta 0.3(–0.4) of the length of tarsus and 1.8(–2.7) times as long as distal seta.

Genital papillae (Paratype, figure 4G): conical, 1.5 times as long as greatest diameter, glabrous, seta 0.6 of the length of papilla.

Pygidium (Figure 4H).

Tergum: posterior margin rounded and with large triangular lobe between *st.* Relative lengths of setae: a_1 = 10, a_2 = 15(–17), a_3 = (17–)19(–21), *st* = 10; *a*-setae cylindrical, tapering, curved inward, sparsely pubescent, with oblique–depressed hairs, *st* thin, pointed, glabrous, curved outward, converging. Distance a_1/a_1–a_1 1.8(–1.9) times as long as a_1; distance a_1–a_2 (2.7–)3.0 times as

long as distance a_2–a_3; distance *st*–*st* 1.8(–1.9) times as long as *st* and (as long as –) 1.3 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 straight. Relative lengths of setae (pygidial a_1 = 10): b_1 = (31–)39(–44), b_2 = (15–)18(–23), b_3 = (22–)24 and 26(–28); b_1 cylindrical blunt, faintly pubescent, b_2 cylindrical, tapering, pointed, with sparse pubescence, b_3 straight, clavate, faintly pubescent; b_1 2.8(–1.9) times as long as distance b_1–b_2, b_3 0.8(–0.9) of distance b_2–b_3.

Anal plate 4-branched, broadest anteriorly, 1.2 times as long as broad, median incision deep, U-shaped anteriorly; submedian branches tapering, rounded distally, each with two appendages, one short, pointed on tergal side, and one long tapering on sternal side, the latter 0.6 of the length of plate, somewhat converging; lateral branches thin, almost cylindrical, curved inward, somewhat shorter than submedian branches. Plate with glabrous tergal appendages, sternal appendages faintly granular.

ETYMOLOGY

From the Latin prolixus = stretched out long (referring to the unique shape of the processes of the collum segment).

Pauropus silvaticus Tiegs, 1943

Pauropus silvaticus Tiegs 1943: 151–156, figures 1-4; Tiegs 1943: 151–156; Tiegs, 1947: 167; Remy 1949: 57; Greenslade and Scheller 2002: 17, 18.

DISTRIBUTION

Victoria, Belgrave. Not known outside Australia.

Pauropus vandiemeni Scheller, 2009

Pauropus vandiemeni Scheller 2009b: 322–325, figures 180–191.

s. n. *Pauropus* sp. 18: Greenslade 2008: 157.

DISTRIBUTION

Tasmania, in the northwest: Savage River, Bradshaws Road and Hibbs Lagoon; in the northeast: Mt Michael and Simons Road; in the southwest: Frodhams Pass; in the southeast: Sandspit River and Mt Mangana on Bruny Island. Not known outside Australia.

Genus *Allopauropus* Silvestri, 1902

Allopauropus Silvestri, 1902: no. 4.

TYPE SPECIES

Allopauropus brevisetus Silvestri, 1902, by subsequent designation by Remy (1957c: 84).

Allopauropus affinis sp. nov.

urn:lsid:zoobank.org:act:F86D6EF2-C064-444E-AB7A-D533EA495B7F

Figure 5A–I

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 18 February 1981 (WAM T125479).

Paratypes

Australia: ***Western Australia*:** 2 ad. 9(□), same data as holotype (WAM T125480); 1 ad. 9(□), same data except 18 July 1980 (WAM T125481); 1 ad. 9(□), same data except 23 October 1980 (WAM T125482).

Non-types

Australia: ***Western Australia*:** 1 ad.9(□), same data as holotype except 15 September 1980; 2 ad. 9(□, □), same data except 11 December 1980; 1 ad. 9(□), same data except 23 June 1981; 1 ad. 9(□), same data except 29 September 1981.

REMARKS

In the characterisation of the genera earlier workers as Silvestri (1902) and Verhoeff (1934) found the degree of truncation of the anterior corners of the sternal antennal branch valuable as a distinguishing character. They knew a small number of species only and from descriptions of species of later date it have appeared that the differences in truncation varies considerably, in some species in *Allopauropus* the difference between the anterior and posterior truncations are insignificant and the value of this character has diminished. It is still true that most species now in *Allopauropus* have a deeper truncation of the anterior corner, but it is also true that in some species (e.g. *A. cantralli* Remy, *A. crucifer* Remy, *A. ipassaensis* Scheller, *A. latistylus* Remy, *A. racovitzai* Remy, *A. spectabilis* Hansen), the difference is unimportant. In the diagnosis of *Allopauropus* in the reclassification of the Pauropoda (Scheller 2008) this character was accordingly deleted from the main characters of the diagnosis.

DIAGNOSIS

With the above remarks in remembrance it might be much needed to compare *A. affinis* sp. nov. with *A. loligoformis* Hagino from Japan (Hagino 1991, 2005). The two species have striking similarities in the shape of the head setae, temporal organs and tarsi, and there are resemblances in the pygidium both in the general shape and in details of the setae and the anal plate. In the Japanese species, however, Hagino reported that the

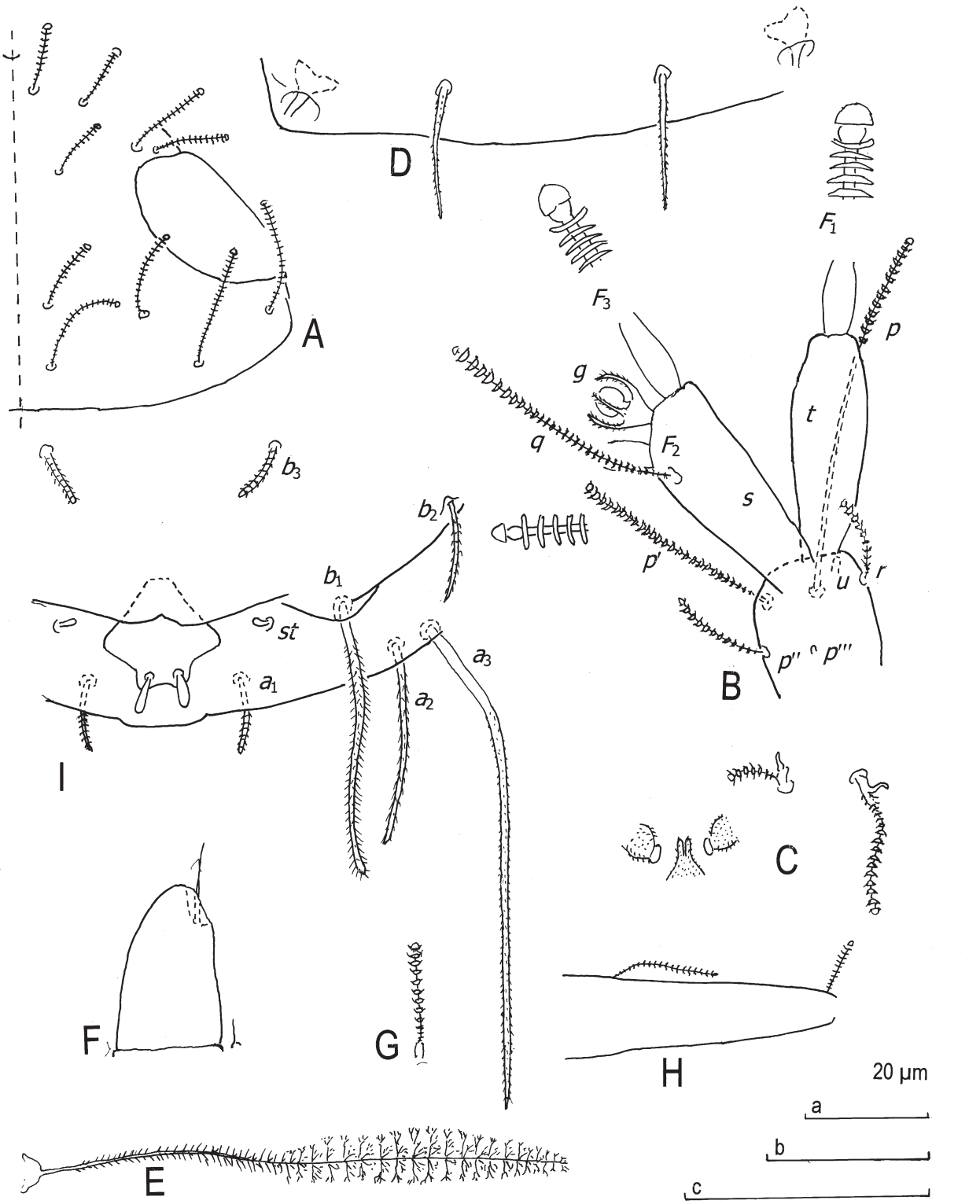

FIGURE 5 *Allopauropus affinis* sp. nov. A–E, G–I holotype ad.9(□), F paratype ad. 9(□): A, head, median and right part, tergal view; B, left antenna, sternal view; C, collum segment, median and right part, sternal view; D, tergite VI, posterior part; E, T_3; F, left genital papilla, anterior view; G, seta on trochanter of leg 9; H, tarsus of leg 9; I, pygidium, posteriomedian and left part, sternal vie. Scale a: Figure E; b: Figures A, C, D, F–H; c: Figures B, I.

posterodistal corner of the sternal antennal branch was more truncate than the anterodistal one and he supposed that it had to be placed in a new taxon. If so will be done *A. affinis* sp. nov. might be included.

Besides the difference in the shape of the sternal antennal branch, the two species can be distinguished by the occurrence of a rudimentary seta *p‴* on the 4th antennal segment in *A. affinis*, none in *A. loligoformis*, the shape of the bothriotricha T_3, thin axis and long, ramose hairs arranged in whorls, not thickened axis and short, simple hairs, and the shape of the setae on coxa and trochanter of the 9th pair of legs, simple, not furcate. Though very alike there are dissimilarities in details of the anal plate too.

DESCRIPTION

Adult male holotype (and paratypes)

Length: (0.65–)0.86(–0.89) mm.

Head (Figure 5A): tergal setae of medium lengths, cylindrical annulate blunt; their relative lengths, 1st row: a_1 = 10, a_2 = (9–)10(–12), 2nd row: a_1 = (9–)10(–13), a_2 = 14(–16), a_3 = 11(–13); 3rd row: a_1 = 11(–12), a_2 = (13–)14(–17); 4th row: a_1 = (11–)13(–14), a_2 = 19(–25), a_3 = (16–)18(–21), a_4 = 13(–16); lateral group setae, l_1 = 25(–27), l_2 = ?, l_3 = (25–)32(–33). Ratio a_1/a_1–$a_1$in 1st row (1.0–)1.1(–1.2), 2nd row 0.7(–0.8), 3rd row 1.1(–1.5), 4th row 1.3(–1.6). Temporal organs short, ovoid in tergal view, length 0.6(–0.7) of shortest interdistance; small pore or pistil at posterior margin. Head cuticle glabrous.

Antennae (Figure 5B): segment 4 with 6 blunt setae, *p, p′, p″* and *r* annulate, *p‴* and *u* rudimentary; their relative lengths: *p* = 10, *p′* = (5–)6, *p″* = *r* = 2. Tergal seta *p* (1.6–)1.7(1.9) times as long as tergal branch *t*. That branch fusiform, (2.8–)3.0 times as long as its greatest diameter and as long as (– 1.2 times as long as) sternal branch *s*. That branch (2.2–-)2.6 times as long as its greatest diameter; anterodistal corner of *s* truncate. Seta *q* as seta *p* of 4th segment, (as long as –)1.1 times as long as the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 10(–12), F_2 = (37–)39(–41), bs_2 = 6(–8), F_3 = (86–)92, bs_3 = (10–)11(–12). F_1 (2.9–)3.4(–3.5) times as long as *t*, F_2 and F_3 1.3(–1.4) and(2.9–)3.0 times as long as *s* respectively. Distal calyces hemispherical; distal part of flagella axes widened only between calyx and first lamella. Globulus *g* almost spherical with short stalk, 1.3(–1.4) times as long as wide, 5(–6) bracts, capsule subspherical; width of *g* (0.6–)0.7 of the greatest diameter of *t*. Bracts pubescent, other parts of antennae glabrous.

Trunk (Figures 5C, D): setae of collum segment (Figure 5C) furcate, main branch annulate blunt, secondary branch rudimentary, tapering, glabrous, sublateral setae 2.1(–2.5) times as long as submedian setae; sternite process small, with deep, anterior incision, appendages ball-shaped, caps hemispherical, distinct constriction below them; process and appendages with short pubescence.

Setae on tergites as setae on head; 4+4 setae on tergite I, 6+6 on II-IV, 6+4 on V, 4+2 on VI. Submedian posterior setae on VI (Figure 5D) (0.5–)0.6 of interdistance and (2.7–)2.8 time as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figure 5E): relative lengths: T_1 = 100, T_2 = (110–)128, T_3 = (112–)120 (Figure 5E), T_4 = (115–)125(–131), T_5 = (120–)147; all with thin, straight, simple axes, T_5 and proximal parts of T_1–T_4 with short, almost erect, simple hairs, distal halves of T_1–T_4 with long branched hairs arranged in proportionately dense whorls.

Genital papillae (Figure 5F): glabrous, rounded distally, 1.5(–1.7) times as long as greatest diameter; seta 0.5 of the length of papilla.

Legs (Figures 5G, H): setae on coxa and trochanter (Figure 5G) of leg 9 simple, cylindrical, annulate, blunt. Corresponding setae on more anterior legs with rudimentary secondary branch. Tarsus of leg 9 (Figure 5H) tapering, (2.8–)3.2 times as long as its greatest diameter. Setae cylindrical, annulate, proximal one tapering, distal one blunt, proximal seta 0.4 of the length of tarsus and (1.6–)1.8 times as long as distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 5 I).

Tergum: posterior margin rounded, low lobe between a_1. Relative lengths of setae: a_1 = 10, a_2 = (27–)28, a_3 = (65–)70(–72), *st* = 1.5(–2); *a*-setae cylindrical, curved inward, with short pubescence, a_2 and a_3 tapering, *st* short, clavate, glabrous, converging. Distance a_1–a_1 (2.0–)3.1(–2.4) times as long as a_1; distance a_1–a_2 ~4(~6) times as long as distance a_2–a_3; distance *st*–*st* 1.4 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with broad indentation and broad shallow lobe with median incision below anal plate. Relative lengths of setae (pygidial a_1 = 10): b_1 = (33–)36(–37), b_2 = 15(–17), b_3 = 8(–9); setae cylindrical, with short pubescence; b_1 0.7 of interdistance, b_2 = (0.7–)0.8 of distance b_1–b_2, b_3 0.3 of interdistance.

Anal plate (Figure 5 I) glabrous, narrowest anteriorly, about as broad as long, with rounded, triangular lobes and a low, posterior lobe with straight sides and shallow posteriomedian indentation, two clavate somewhat diverging appendages pointing backward from posterior lobe, appendages 0.3 of the length of plate.

ETYMOLOGY

From the Latin affinis = neighbouring, related (referring to the similarities with *A. loligoformis* Hagino).

Allopauropus attenuatus sp. nov.

urn:lsid:zoobank.org:act:6373A75E-D2FC-4453-B5AA-B84D7D0312BC

Figure 6A–H

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*****:** ad. 9(sex?), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 18 February 1981 (WAM T125483).

Paratypes

Australia: ***Western Australia*****:** 2 ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 19 January 1981 (WAM T125484); 1 ad. 9(□), same data as holotype except 19 May 1981 (WAM T125485).

Non-types

Australia: ***Western Australia*****:** 2 subad. 8(□, □), 2 juv. 5, in soil, Murray River site, 20 September 1980; 1 subad. 8(□), Yarragil Brook site, 19 January 1981; 1 juv. 6, Murray River site, 18 February 1981; 1 ad. 9(□), 4 juv. 6, 2 juv. 5, Yarragil Brook site, 25 February 1981; 1 juv. 6, 18 March 1981; 1 subad. 8(□), Murray River site, 18 April 1981; 1 juv. 5, 21 April 1981; 1 subad. 8(□), Murray River site, 27 May 1981; 1 subad. 8(□), Yarragil Brook site, 26 August 1981; 1 juv. 6, Murray River site, 21 September 1981; 1 subad. 8(□), Murray River site, 22 September 1981.

DIAGNOSIS

The new species may be a close relative to *A. bidentatus* Scheller described from Angola (Scheller 1975). They can be distinguished by the shape of the tergal antennal branch, 5.4–6.0 times as long as its greatest diameter in *A. attenuatus,*4.9–5.0 in *A. bidentatus,* the pygidial setae *st*, somewhat clavate, not cylindrical, and the anal plate, with distinct posteriomedian incision, not a shallow one.

DESCRIPTION

Adult holotype (and paratypes)

Length: 0.70(–0.95) mm.

Head (Figure 6A): tergal setae subcylindrical, striate–pubescent, those of 1st and 3rd rows of medium length, a_1 and a_3 of 4th row long. Relative lengths of setae, 1st row: a_1 = 10, a_2 = 10(–11); 2nd row: a_1 = ?(10–13), a_2 = 14, a_3 = (12–)13(–18); 3rd row: $a_1 = a_2$ = (7–)8(–9); 4th row: a_1 = (9–)11, a_2 = (24–)26, a_3 = (17–)21, a_4 = (12–)13; lateral group setae (one paratype): l_1 = 16, l_2 = 10, l_3 = 14. Ratio a_1/a_1–a_1 in 1st and 4th rows (1.2–)1.3, 2nd row ?(0.7–0.8), 3rd row 1.2(–1.5), length of temporal organs (0.6–)0.8 of shortest interdistance; pistil in posterior half, length 0.2 of the length of temporal organ. Head cuticle glabrous.

Antennae (Figure 6B): segment 4 with 6 thin, cylindrical, striate–annulate setae, their relative lengths: p = 10, p' = 7(–8), p'' = (4–)5(–6), p''' = u = 1, r = 3. Tergal seta p 1.2(–1.3) times as long as tergal branch *t*. The latter (5.4–)6.0 times as long as its greatest diameter and (1.2–)1.3(–1.5) times as long as sternal branch *s,* that branch 2.5(–3.2) times as long as its greatest diameter; anterodistal corner of *s* somewhat more truncate than posterodistal one. Seta *q* as *p* of 4th segment, 0.8(–0.9) of the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 5; F_2 = (55–)61(–74), bs_2 = (4–)5; F_3 = (55–)75(–82), bs_3 = 5(–6). F_1 (2.0–)2.3(–2.5) times as long as *t,* F_2 and F_3 2.2(–2.5) and (2.4–)2.5(–2.7) times as long as *s* respectively. Distal calyces helmet-shaped; distal part of flagella axes below calyces not at all (– somewhat) widened. Globulus *g* subspherical, (1.2–)1.3(–1.4) times as long as wide, ~7 bracts, capsule subhemispherical; width of *g* 0.8(–0.9) of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figure 6C, D): setae of collum segment (Figure 6C) furcate, branches cylindrical, tapering distally, primary one annulate–striate, secondary one rudimentary glabrous, lateral ones (1.8–)2.0 times as long as submedian ones; sternite process triangular, narrow anteriorly; appendages well rounded with hemispherical caps; appendages and anterior part of sternite process with short pubescence.

Setae on tergites cylindrical, strongly lengthening posteriorly, about 3 times longer on tergite VI than on tergite I; 4+4 setae on I, 6+6 on II-IV, 6+4 on V, 4+2 on VI. Submedian posterior setae on VI (Figure 6D) proportionately long, 1.3(–1.5) times as long as interdistance and at least as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha: relative lengths: T_1 = 100, T_2 = (98–)113(–116), T_3 = 124(–149), T_4 = 157 and 165(–184), T_5 = (189–)216(–258); all with thin axes, pubescence hairs short, simple, oblique, axes and pubescence strongest on T_3 (Figure 6E).

Legs (Figure 6E, F): setae on coxa (Figure 6E) and trochanter of leg 9 furcate, blunt, annulate, primary branch cylindrical, striate–pubescent, secondary branch somewhat clavate, glabrous (– with short pubescence). Corresponding setae on more anterior legs with rudimentary secondary branches. Tarsus of leg 9 (Figure 6F) very slender, tapering, (5.4–)6.0 times as long as its greatest diameter. Proximal seta tapering, pointed, with depressed–oblique pubescence, distal one somewhat clavate, striate; proximal seta 0.5 of the length of tarsus and (4.8–)5.0(–5.3) times as long as distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 6G, H).

Tergum: posterior margin evenly rounded. Relative lengths of setae: a_1 = 10, a_2 = 7(–13), a_3 = (10–)12(–14), *st* = 2; all directed posteriorly, *a*-setae tapering, pointed, with short pubescence, *st* clavate glabrous. Distance a_1–a_1 0.5 of the length of a_1; distance a_1–a_2 2.3(–2.4) times as long as distance a_2–a_3; distance *st*–*st* (2.1–)2.5(–2.7) times as long as *st* and (0.6–)0.7 of distance a_1–a_1 Cuticle glabrous.

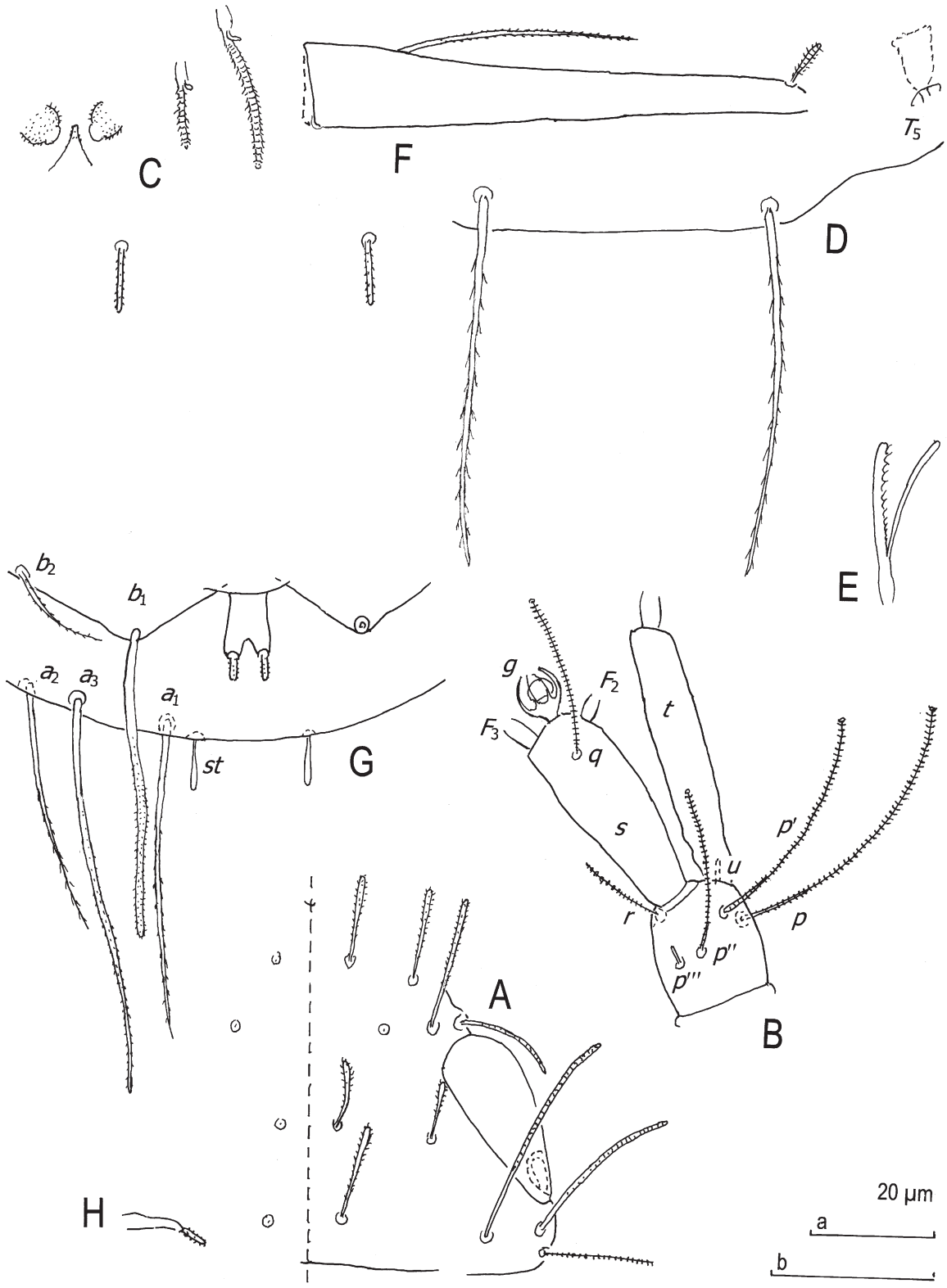

FIGURE 6 *Allopauropus attenuatus* sp. nov., holotype, ad. 9(sex?): A, head, median and right part, tergal view; B, right antenna, sternal view; C, collum segment, median and left part, sternal view; D, tergite VI, posterior part; E, seta on coxa of leg 9; F, tarsus of leg 9; G, pygidium, posteriomedian and right part, sternal view; H, anal plate, lateral view. Scale a: Figure A, F; b: Figures B–E, G, H.

Sternum. Posterior margin between b_1 deeply indented, low rounded lobe below anal plate. Relative lengths of setae (pygidial a_1 = 10): b_1 = 9(–10), b_2 = 3(–5), b_3 = 2(–4); setae b_3 cylindrical, with short pubescence, b_2 curved inward and converging; b_1 1.3(–1.5) times as long as interdistance; b_2 (0.9–) as long as distance b_1–b_2, b_3 0.3(–0.4) of interdistance.

Anal plate (Figure 10G, H) narrowest in anterior half, (1.2–)1.4(–1.5) times as long as broad, lateral margins almost straight, posterior part divided into two short branches by small V-shaped indentation, two short, cylindrical, blunt and appendages with short pubescence protruding backward from posterior branches, length of appendages 0.3(–0.4) of the length of plate.

ETYMOLOGY

From the Latin attenuatus = drawn out, thin (referring to the shape of the tarsi).

***Allopauropus dysmikos* sp. nov.**

urn:lsid:zoobank.org:act:CB088BEB-E680-4F8B-9146-7738ADBA5684

Figure 7A–H

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad.9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 15 April 1981 (WAM T125487).

Paratypes

Australia: ***Western Australia*:** 1 ad. 9(□), 1 subad. 8(□), 1 juv. 5, same data as holotype except 28 July 1981 (WAM T125488); 1 ad. 9(□), c. 22 km SSE. of Dwellingup, Yarragil Brook site, 19 May 1981 (WAM T125489); 1 ad. 9(□), same data except 29 December 1981 (WAM T125490).

Non-types

Australia: ***Western Australia*:** Murray River site, in soil, 1 juv. 5, 25 May 1980; 1 subad. 8(□), 2 juv. 3, 18 July 1980; 1 ad. 9(□), 6 juv. 6, 4 juv. 6, 7 juv. 3, 25 July 1980; 3 ad. 9(□), 5 subad.8(□), 4 juv. 6, 2 juv. 5, 6 juv. 3, 18 August 1980: 1 ad.9(□), 2 juv. 6, 20 September 1980; 1 ad.9(□), 16 October 1980; 1 ad.9(□), 1 subad. 8(□), 1 juv. 6, 24 October 1980: 1 juv. 5, 10 December 1980; 3 subad. 8(□), 2 juv. 6, 3 juv. 5, 18 October 1980; 1 ad. 9(sex?), 23 October 1980; 1 ad. 9(□), 1 subad. 8(□), 2 juv. 6, 18 February 1981; 1 ad.9(□), 1 subad.8(□), 25 February 1981; 2 subad. 8(□), 18 March 1981; 1 subad.8(□), 25 March 1981; 2 ad. 9(□) 1 subad.8(□), 1 juv. 5, 15 April 1981; 1 ad.9(□), 3 subad. 8(□), 4 juv. 6, 3 juv. 5, 21 April 1981; 2 ad. 9(□), 2 juv. 6, 19 May 1981; 1 ad. (□), 2 subad. 8(□), 1 juv. 6, 2 juv. 5, 6 juv. 3, 27 May 1981; 1 subad. 8(□), 23 June 1981; 1 ad. 9(□), 3 juv. 3, 25 July 1981; 1 ad. 9(sex?), 1 subad. 8(□), 28 July 1981; 1 ad. 9(□), 6 juv. 5, 25 August 1981; 2 juv. 6, 21 September 1981; 1 subad. 8(F#), 29 September 1981.

DIAGNOSIS

Owing to the varying quality of some earlier species descriptions and the subcosmopolitan range of the genus the relationships are difficult to trace but *A. dysmikos* sp. nov. may have affinities to the Madagascan *A. orientalis* Remy and Rollet (1960), *A. aculeatus* Remy (1955a) from Angola and Congo Kinshasa and *A. novicaledonicus* Scheller (1993) from New Caledonia. It is well distinguished by its long antennal branches *t* and tarsi, long pygidial *a*-setae and the large pistil in the temporal organs.

DESCRIPTION

Adult female holotype (and paratypes)

Length: (0.95–)1.25 mm.

Head (Figure 7A): tergal setae long, subcylindrical–somewhat clavate, pubescent; their relative lengths, 1st row: a_1 = 10, a_2 = (11–)12(–13); 2nd row: a_1 = (11–)13(–14), a_2 = 16(–20), a_3 = 14(–18); 3rd row: a_1 = 10, a_2 = (11–)12; 4th row: a_1 = (12–)13, a_2 = (24–)29(–35), a_3 = 19(–22), a_4 = 14(–17); lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 1.5(–1.6), 2nd row 0.6(–0.7), 3rd row (1.5–)1.7, 4th row (1.4–)1.7. Temporal organs ovoid in tergal view, length 0.7 of shortest interdistance; large pistil with attachment in posterior third, length of pistil 0.2 of the length of temporal organ. Head cuticle glabrous.

Antennae (Figure 7B): segment 4 with 6 cylindrical blunt setae, densely striate–annulate; their relative lengths: p = 10, p' = (6–)7(–8), p'' = r = 3, p''' = 2, u = 1. Tergal seta p (1.1–)1.2(–1.3) time as long as tergal branch *t*. The latter branch somewhat fusiform, (4.8–)5.4(–6.0) times as long as its greatest diameter and (1.2–)1.3 times as long as sternal branch *s*, that branch (2.8–)3.0 times as long as its greatest diameter; anterodistal corner of *s* more truncate than posterodistal corner. Seta q as p of 4th segment, (0.8–)0.9(–1.0) of the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 5(–6), F_2 = (64–)72(–74), bs_2 = 5; F_3 = (67–)73, bs_3 = 5(–6). F_1 (2.7–)3.0 times as long as *t*, F_2 and F_3 2.5(–2.6) and (2.4–)2.5(–2.8) times as long as *s* respectively. Distal calyces conical; distal part of flagella axes not widened below calyx in F_2, only a little widened below calyx and first lamella in F_1 and F_3; globulus *g* almost spherical, 1.1 times as long as wide, ~11 bracts, capsule subspherical; width of *g* 0.9 of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figure 7C, D): setae of collum segment (Figure 6C) furcate, cylindrical, blunt, main branch thick, annulate, secondary branch rudimentary; sublateral setae (2.2–)2.4 times as long as submedian setae; sternite process small with anterior incision, appendages barrel-shaped, caps flat with collar and constriction

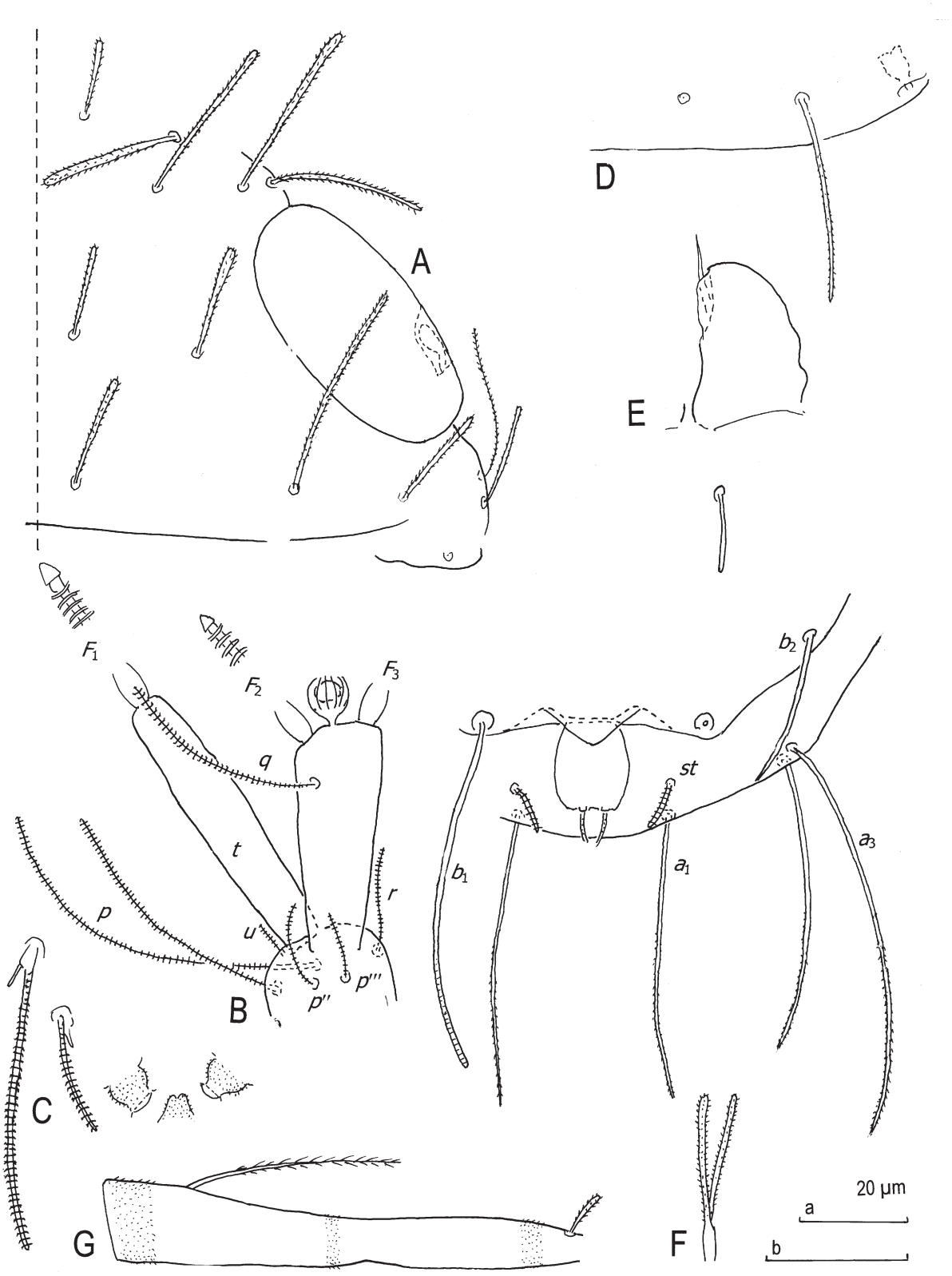

FIGURE 7 *Allopauropus dysmikos* sp. nov., A–D, F–H holotype ad. 9(□), E paratype ad. 9(□): A, head, median and right part, tergal view; B, left antenna, sternal view; C, collum segment, median and right part, sternal view; D, tergite VI, posterior part; E, genital papillae, anterior view; F, seta on coxa of leg 9; G, tarsus of leg 9; H, pygidium, posteriomedian and left part, sternal view. Pubescence only partly drawn in G. Scale a: Figures E–G; b: Figures A–D, H.

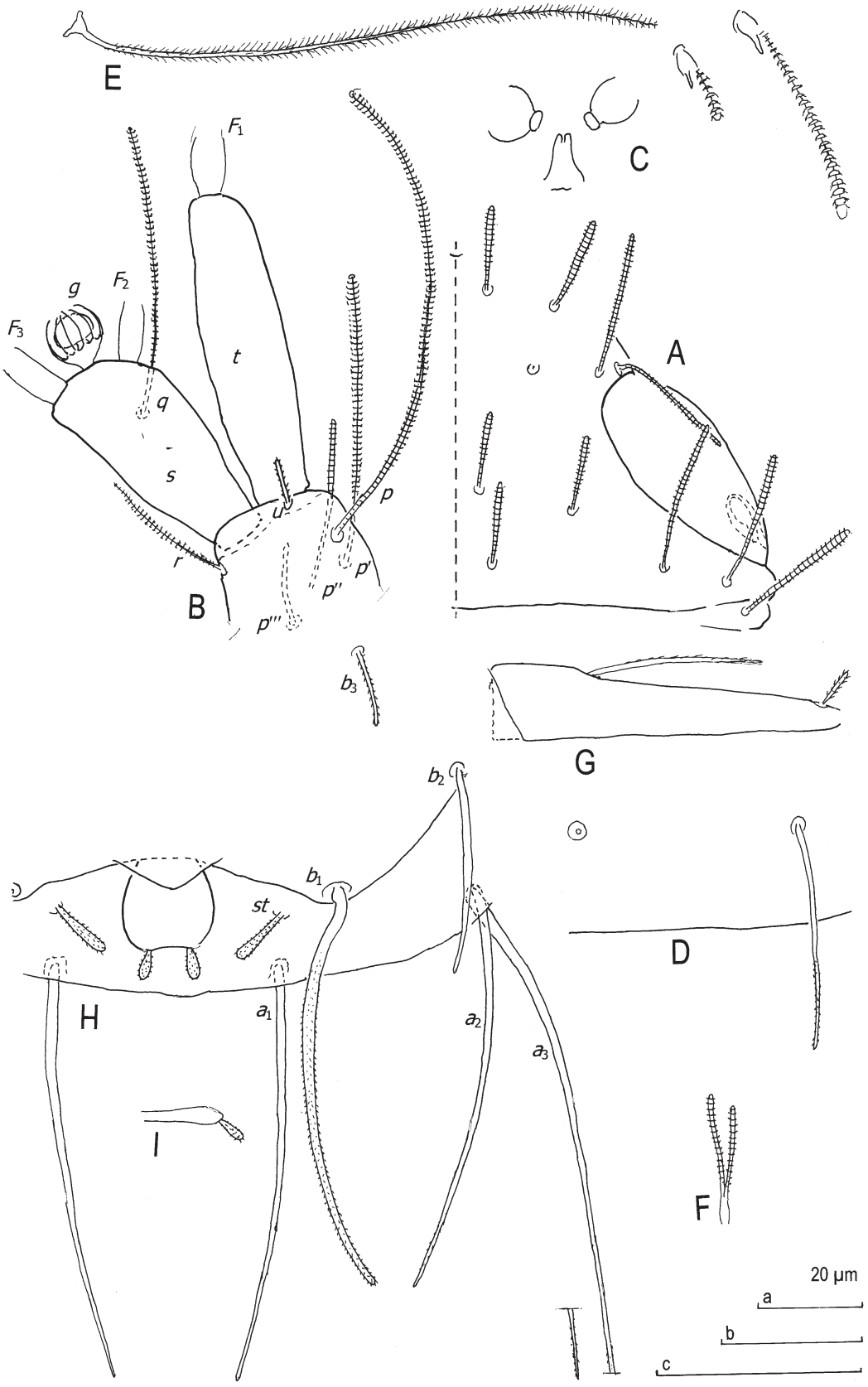

FIGURE 8 *Allopauropus eumekes* sp. nov., A–D, F–I, holotype ad. 9(□), E, paratype subad. 8(□): A, head, median and right part, tergal view; B, left antenna, tergal view; C, collum segment, median and left part, sternal view; D, tergite VI, posteriomedian part; E, T_3; F, seta on coxa of 9th pair of legs; G, tarsus of 9th pair of legs; H, pygidium, posteriomedian and left part, sternal view; I, anal plate, lateral view. Scale a: Figures E–G; b: Figures A, C, D; c: Figures B, H, I.

below it; process and appendages with short pubescence.

Setae on tergites subcylindrical, on posterior tergites tapering, with short pubescence; 4+4 setae on tergite I, 6+6 on II–V, 4+3 on VI. Submedian posterior setae on VI (Figure 6D) 1.6(–1.9) times as long as interdistance and (as long as –)1.1 times as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha: relative lengths: T_1 = 100, T_2 = (102–)107(–110),T_3 = (111–125), T_4 = (142–)152(–157), T_5 = (204–)221; all with short pubescence and with thin, simple axes.

Genital papillae (paratype) (Figure 7E): glabrous, rounded distally, 1.6(–1.7) times as long as greatest diameter; seta (0.3–)0.4 of the length of papilla.

Legs (Figure 7 F, G): seta on coxa (Figure 7F) and trochanter of leg 9 furcate, branches subsimilar, cylindrical, blunt, densely pubescent. Corresponding setae on more anterior legs with rudimentary secondary branch. Tarsus of leg 9 (Figure 7G) very slender, (5.6–)5.9(–6.5) times as long as its greatest diameter. Setae thin, cylindrical, proximal seta tapering, pointed with distinct oblique pubescence, distal seta blunt, proximal seta with short pubescence, 0.4(–0.5) of the length of tarsus and (4.6–)4.8(–5.1) times as long as distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 7H).

Tergum: posterior margin evenly rounded. Relative lengths of setae; a_1 = 10, a_2 = 9(–11), a_3 = (13–)16, *st* = 2; *a*-setae long, cylindrical, tapering most distally, with short pubescence, a_2 and a_3 also curved inward; *st* short, cylindrical (– somewhat clavate), striate, converging. Distance a_1–a_1 0.5(–0.6) of the length of a_1; distance a_1–a_2 5(–7) times as long as distance a_2–a_3; distance *st*–*st* (1.8–)2.2 times as long as *st* and (0.9–)1.1 times as long as distance a_1-a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 somewhat indented and with posteriomedian triangular lobe below anal plate. Relative lengths of setae (pygidial a_1 = 10): b_1 = 9(–13), b_2 = 5(–7), b_3 = 3; setae cylindrical, with short pubescence; b_1 (1.4–)1.6 of interdistance; b_2 1.2(–1.4) times as long as distance b_1–b_2, b_3 (0.4–)0.5 of interdistance. The b_1 a little clavate distally in a few specimens.

Anal plate glabrous, narrowest anteriorly, as long as (– 1.1 times as long as) broad, with convex lateral margins, posterior margin straight, with very small median indentation, two thin, cylindrical, somewhat converging appendages pointing backward from distal part, appendages (0.5–)0.6 of the length of plate.

ETYMOLOGY

From the Greek dysmikos = western (referring to the occurrence in Western Australia).

***Allopauropus eumekes* sp. nov.**

urn:lsid:zoobank.org:act:80C01F2E-5DD4-439F-9C49-2CF6A3CB499A

Figure 8A–I

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 11 November 1981 (WAM T125491).

Paratype

Australia: *Western Australia*: 1 subad. 8(□), in soil, same data as holotype except 28 July 1981 (WAM T125492).

Non-types

Australia: *Western Australia*: 1 juv. 5, 3 juv. 3, same data, in soil, 25 February 1981.

DIAGNOSIS

The occurrence of long antennal tergal branch *t,* long *a*-setae on the pygidial tergum and the anal plate with two posterior appendages is a character combination often met with in *Allopauropus*. Such species have earlier been found in tropical Africa, in South America, South Asia and New Caledonia and at present the relationships of *A. eumekes* are not possible to trace.

DESCRIPTION

Adult female holotype

Length. 1.05 mm.

Head (Figure 8A): tergal setae of medium lengths long, cylindrical, blunt, striate; their relative lengths, 1st row: a_1 = 10, a_2 = 12; 2nd row: a_1 = ?, a_2 = 18, a_3 = 15; 3rd row: a_1 = a_2 = 9; 4th row: a_1 = 10, a_2 = 33, a_3 = 17, a_4 = 16; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st and 3rd rows 1.2, 2nd row?, 4th row 0.9. Temporal organs longish in tergal view, length 0.8 of shortest interdistance; clavate pistil in posterior halves, length 0.2 of the length of temporal organ. Head cuticle glabrous.

Antennae (Figure 8B): segment 4 with 6 cylindrical setae, *r* pointed, the others blunt; their relative lengths: *p* = 10, *p′* = 6, *p″* = 4, *p‴* = 2, *r* = 3, *u* = 1. Tergal seta *p* 1.5 times as long as tergal branch *t.* That branch fusiform, 3.8 times as long as its greatest diameter and 1.4 times as long as sternal branch *s*, the latter 2.2 times as long as its greatest diameter; anterodistal corner of *s* truncate. Seta *q* as setae *p* of 4th segment, 1.3 times as long as the length of *s*. Lengths of flagella (basal segments included) and basal segments: F_1 = ?, bs_1 = 5, F_2 = 67, bs_2 = 6, F_3 = 69, bs_3 = 6 µm. The F_2 and F_3 3.0 and 3.1 times as long as *s* respectively. Globulus *g* short, as long as wide, ≈11 bracts, capsule with flattened bottom, width of *g* 0.8 of the greatest diameter of *t.* Antenna glabrous.

Trunk (Figures 8 C, D): setae of collum segment (Figure 8C) furcate, branches cylindrical, main branch annulate, secondary branch rudimentary, thin, glabrous;

sublateral setae 2.8 times as long as submedian setae; sternite process narrow anteriorly, with apical incision; appendages subspherical, caps a little flattened, with short collar; process and appendages glabrous.

Setae on tergites cylindrical, as setae on head; 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Submedian posterior setae on VI (Figure 8D) 0.8 of both interdistance and of the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figure 8E): relative lengths: T_1 = 100, T_2 = 119, T_3 = ?, T_4 = 200, T_5 = 241, those studied with thin, straight, simple axes, pubescence on T_5 and proximal parts of T_1–T_4 short oblique, on T_3(Figure 7E, paratype) longer dense, erect distally.

Legs (Figures 8F, G): setae on coxa (Figure 8F) and trochanter of leg 9 furcate, branches cylindrical, striate, blunt. Corresponding setae on more anterior legs with rudimentary secondary branches. Tarsus of leg 9 (Figure 8G) slender, tapering, 4.8 times as long as its greatest diameter. Setae cylindrical, with depressed, short, pubescence, proximal seta tapering, 0.5 of the length of tarsus and 4.4 times as long as distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 8H).

Tergum: posterior margin rounded. Relative lengths of setae: a_1 = a_2 = 10, a_3 = 14, *st* = 1; a_1–a_3 long, glabrous or with short pubescence distally, curved inward, *st* somewhat clavate, converging, with dense, short, pubescence. Distance a_1–a_1 0.6 of the length of a_1; distance a_1– a_2≈4 times as long as distance a_2–a_3; distance *st*–*st* 3.7 times as long as *st* and as long as distance a_1– a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 broadly indented and with low, triangular lobe below anal plate. Relative lengths of setae (pygidial a_1 = 10): b_1 = 10, b_2 = 5, b_3 = 2; setae blunt, with short pubescence, b_1 and b_2 tapering, b_3 cylindrical; b_1 1.2 times as long as interdistance, b_2 1.2 times as long as distance b_1–b_2, b_3 0.2 of interdistance.

Anal plate (Figure 8H, I) narrowest anteriorly, as broad as long, lateral margins convex, posterolateral corners rounded, posterior margin straight, two clavate appendages with short pubescence protruding backward-downward from posterior margin, length of appendages 0.4 of the length of plate.

ETYMOLOGY

From the Greek eumekes = of good length (referring to the long setae of the pygidial tergum).

Allopauropus foederatus sp. nov.

urn:lsid:zoobank.org:act:F7988D11-39D9-4F28-8486-F9AE9185DAC0

Figure 9A–H

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 18 March 1981 (WAM T125493).

Paratype

Australia: *Western Australia*: ad. 9(□), same data as holotype (WAM T125494).

DIAGNOSIS

Like *A. paramaoriorum* sp. nov. described below *A. foederatus* sp. nov. has many similarities with *A. maoriorum* Remy from New Zealand (Remy 1956a). Good distinguishing characters are in the temporal organs, pubescent and with bulge in the middle in *A. foederatus*, glabrous and no bulge in *A. maoriorum*, the base of the antennal flagellum F_3, shorter than the length of the globulus *g*, not distinctly longer, the shape of the setae on the coxa and trochanter of legs 1–8, simple, not with rudimentary secondary branches, these three characters also distinguishing it from *A. paramaoriorum*. Moreover, *A. foederatus* is distinguished from *A. maoriorum* by the shape of the anal plate, linguiform, with short pubescence on posterior appendages, not pentagonal, with glabrous posterior appendages. Another valuable character distinguishing *A. foederatus* from *A. paramaoriorum* is the length of the seta *r* on the 4th antennal segment, as long as sternal antennal branch, not half of that length.

DESCRIPTION

Adult male holotype (and paratype)

Length: 0.80(–0.82) mm.

Head (Figure 9A): tergal setae of medium lengths, cylindrical, annulate, blunt; their relative lengths (holotype only), 1st row: a_1 = 10, a_2 = 14; 2nd row: a_1 = 12, a_2 = 19, a_3 = 12; 3rd row: a_1 = 10, a_2 = 18; 4th row: a_1 = 14, a_2 = 30, a_3 = 20, a_4 = 28; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 0.7, 2nd row 0.4, 3rd and 4th rows 0.8; temporal organs narrow in tergal view, length 0.6 of shortest interdistance; distinct bulge in the middle. Head cuticle glabrous but temporal organs with short pubescence.

Antennae (Figure 9B): segment 4 with 6 blunt setae, *p, p′, p″* and *r* annulate, *u* very short, *p‴* rudimentary; their relative lengths: *p* = 10, *p′* = 3(–4), *p″* = (3–)5, *r* = (6–)7. Tergal seta *p* 1.3(–1.8) times as long as tergal branch *t*. The latter fusiform, 1.8(–2.4) times as long as its greatest diameter and about as long as sternal branch *s*, that branch (1.6–)1.7 times as long as its greatest diameter; anterodistal corner of *s* truncate. Seta *q* as seta *p* of 4th segment, 1.5 times as long as the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = (7–)6, F_2 = (38–)40, bs_2 = 5, F_3 = 80(–90), bs_3 = 7. F_1 4.5 times as long as *t*, F_2 and F_3(1.6–)1.7 and 3.8(–4.5) times as long as *s* respectively. Distal calyces of F_1 and F_3 somewhat flattened, those of F_2 helmet-shaped; distal part of flagella axes widened inconsiderably. Globulus *g* short, as long as wide, 4(–6) bracts, capsule with flattened bottom; width of *g* 0.7 of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figure 9C, D): setae of collum segment (Figure

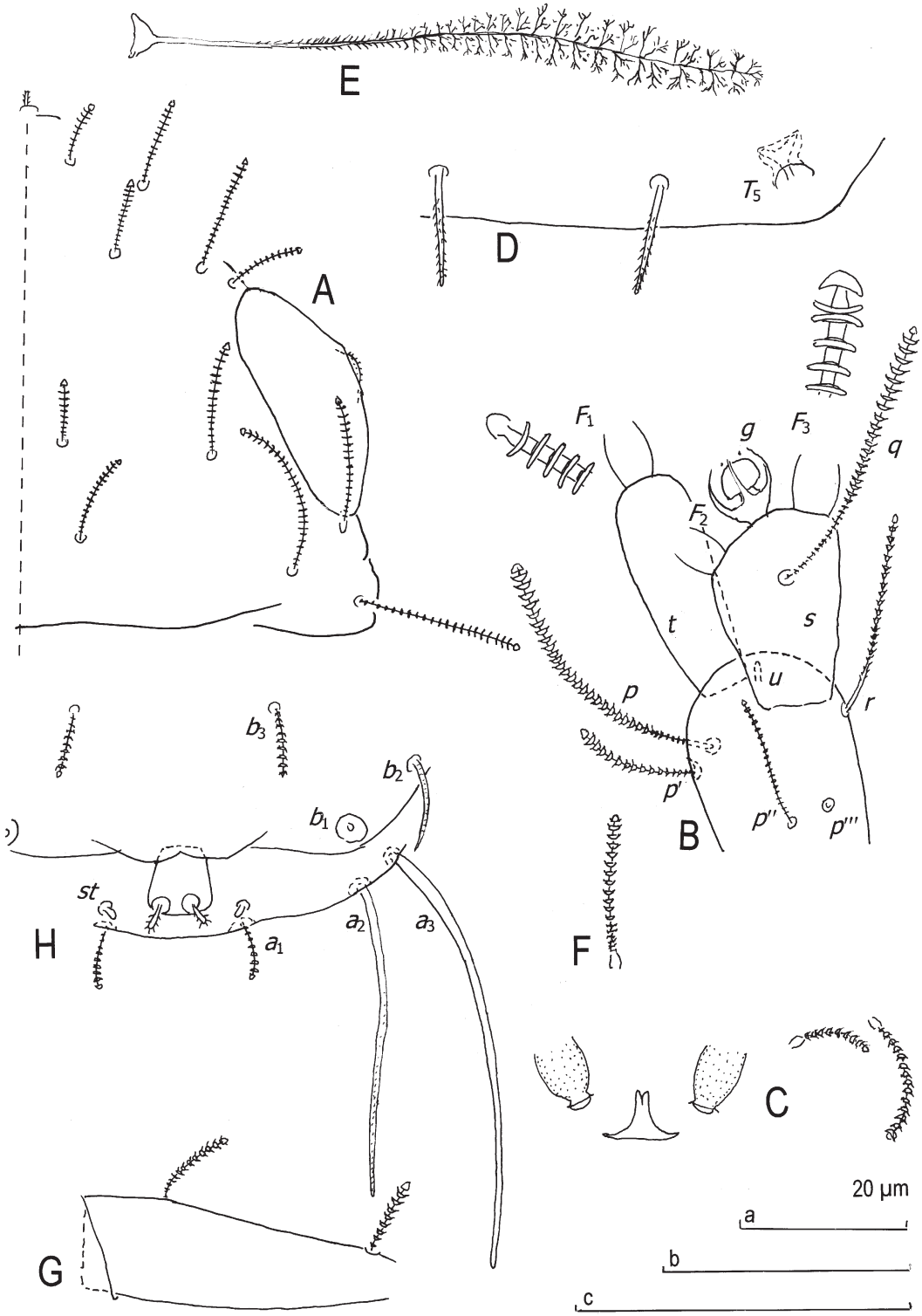

FIGURE 9 *Allopauropus foederatus* sp. nov. holotype, ad. 9(□): A, head, median and right part, tergal view; B, left antenna, sternal view; C, collum segment, median and left part, sternal view; D, tergite VI, posterior part; E, T_3; F, seta on trochanter of leg 9; G, tarsus of leg 9; H, pygidium, posteriomedian and left part, sternal view. Scale a: Figures D, E; b: Figures A, C, F–H; c: Figure B.

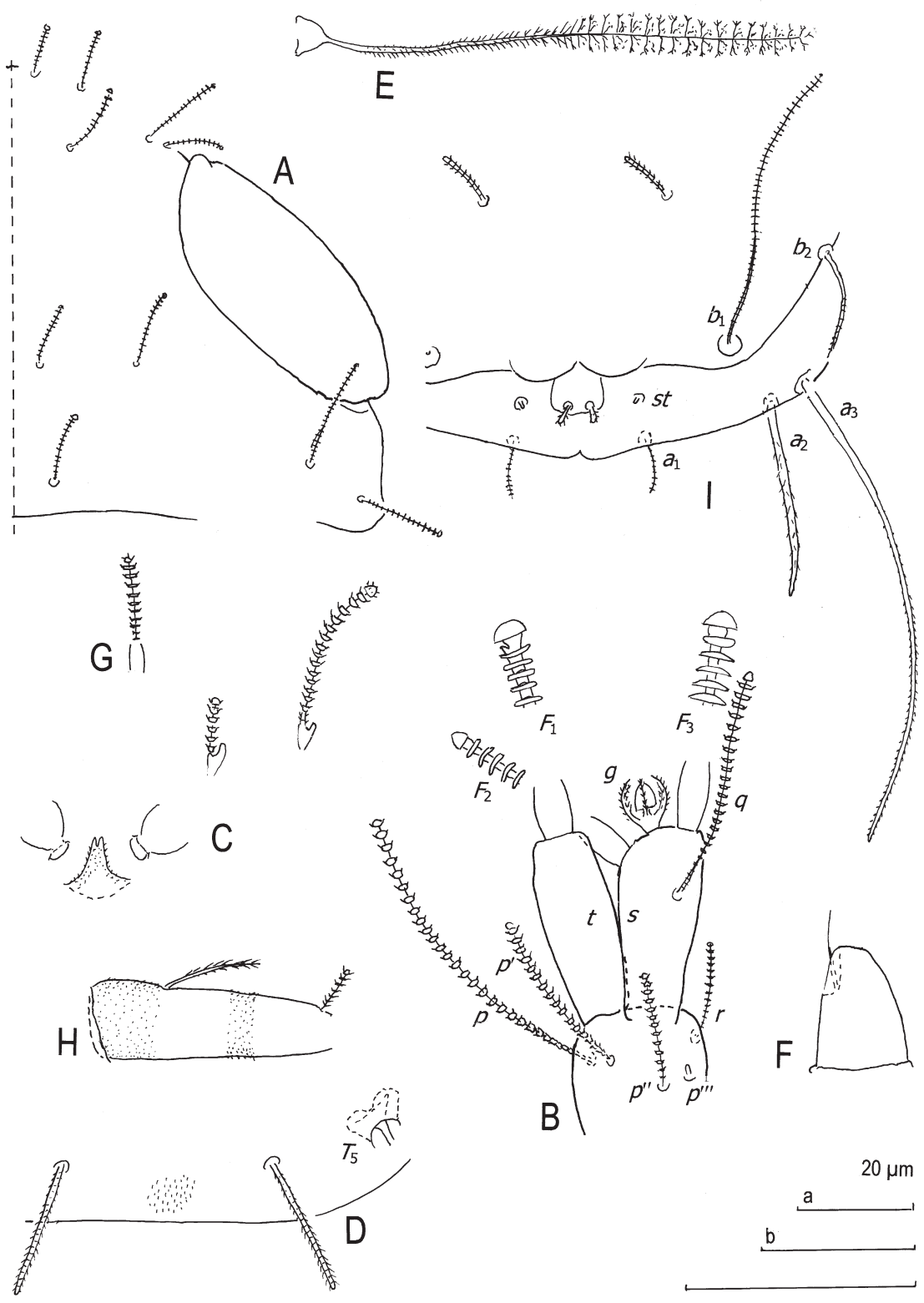

FIGURE 10 *Allopauropus paramaoriorum* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, left antenna, sternal view: C, collum segment, median and left part, sternal view; D, tergite VI, posterior part; E, T_3; F, left genital papilla, anterior view; G, seta on coxa of leg 9; H, tarsus of leg 9; I, pygidium, posteriomedian and left part, sternal view. Pubescence only partly drawn in D, H. Scale a: Figure E, b: Figures A, D, F–H; c: Figures B, C, I.

9C) simple, cylindrical, annulate, blunt; sublateral ones 2.1(–2.7) times as long as submedian ones; sternite process narrow anteriorly, with distinct incision; appendages longish, barrel-shaped, caps a little flattened and with collar; process and appendages faintly pubescent.

Setae on tergites as setae on head, cylindrical; 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+3 on VI. Submedian posterior setae on VI (Figure 9D) 0.5 of interdistance and 2.2(–2.7) times as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figure 9E): relative lengths : T_1 = 100, T_2 = (104–)110, T_3 = 106 (Figure 9E),T_4 = (106–)107,T_5 = (110–)134; all with thin simple straight axes, T_5 and proximal parts of T_1–T_4 with short simple hairs, almost erect on T_1–T_4, strongest and oblique on T_5, distal halves of T_1–T_4 with long, branched hairs arranged in whorls.

Legs (Figure 9F, G): setae on coxa and trochanter (Figure 9F) of all legs simple, cylindrical, blunt, annulate. Tarsus of leg 9 (Figure 9G) tapering, 3.1 times as long as its greatest diameter. Setae cylindrical annulate, proximal one 0.3 of the length of tarsus and 1.2(–1.3) times as long as distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 9H).

Tergum: posterior margin rounded, low lobe between *st*. Relative lengths of setae: a_1 = 10, a_2 = (37–)49, a_3 = (59–)69, *st* = (1–)2; a_1 a little clavate, annulate, a_1–a_3 curved inward, a_2 and a_3 striate distally, *st* glabrous, converging. Distance a_1–a_1 2.0(–2.1) times as long as a_1; distance a_1–$a_2$3.5(–3.7) times as long as distance a_2–a_3; distance *st*–*st* as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with low lobe with median incision. Relative lengths of setae (pygidial a_1 = 10): b_1 absent, b_2 = 13(–18), b_3 = 8(–11); setae cylindrical annulate; b_2 1.0(–1.3) times as long as b_1–b_2, b_3 (0.4–)0.5 of interdistance.

Anal plate narrowest anteriorly, linguiform, about as broad as long, with rounded posterolateral corners, two clavate, diverging and distinctly pubescent appendages pointing backward from sternal side of evenly rounded posterior margin, appendages 0.5 of the length of plate.

ETYMOLOGY

From the Latin foederatus = allied with (referring to the close similarities with *A. maoriorum* Remy).

Allopauropus fraterculus Scheller, 2009

Allopauropus fraterculus Scheller 2009b: 290–292, figures 1–11; Scheller 2009b: 290–292.

s. n. *Allopauropus (Allopauropus)* n. sp. 1: Greenslade 2008: 156, 159.

DISTRIBUTION

Tasmania, in the northwest: Savage River, Bradshaws Road, Cradle Mountain and Hibbs Lagoon; in the northeast: Mt Michael; in the southeast: Big Sassy Creek and Mt Mangana on Bruny Island. Not known outside Australia.

Allopauropus inusitatus Scheller, 2009

Allopauropus inusitatus Scheller 2009b: 292–294, figures 12–24; Scheller 2009b: 292–294.

s. n. *Allopauropus (Allopauropus)* n. sp. 2: Greenslade 2008: 156, 159.

DISTRIBUTION

Tasmania, in the southeast: Big Sassy Creek, Sandspit River and Mt Mangana on Bruny Island. Not known outside Australia.

Allopauropus maoriorum Remy, 1956

Allopauropus maoriorum Remy 1956a: 19–21, figure 4:1–5.

MATERIAL EXAMINED

Australia: *Western Australia*: c. 22 km SE of Dwellingup, Yarragil Brook site, in litter, 37 ad. 9(20□, 17□), 10 subad. 8(5□, 5□), 5 juv. 6, 24 February 1981; 1 ad. 9(□), same data except in soil, 20 September 1980; 1 juv. 5, 1 juv. 3, 21 September 1980; 2 juv. 3, 27 May 1981; 1 juv. 6, 29 September 1981.

DISTRIBUTION

This species has a wide range on the southern hemisphere, with two sites known from New Zealand and one each from New Caledonia and South Chile. It is also known from a hot-house in Switzerland. These specimens represent the first from Australia.

Allopauropus paramaoriorum sp. nov.

urn:lsid:zoobank.org:act:1A06014B-6F6D-44ED-85FA-4D5678DD7F45

Figure 10A–I

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 23 June 1981 (WAM T125495).

Paratypes

Australia: *Western Australia*: 1 ad. 9(□), same data as holotype except 18 July 1981 (WAM T125496); 1 subad.8(□), 1 juv. 3, same data except 19 May 1981 (WAM T125497).

DIAGNOSIS

There are distinct similarities between the new species and *A. maoriorum* Remy described from New Zealand (Remy 1956a). Good distinguishing characters are the shape of the tergal antennal branch *t,* 2.5–2.6 times as long as the greatest diameter in *A, paramaoriorum* sp. nov., 3 times longer than greatest diameter in *A. maoriorum,* the bothriotricha T_3, axes with even surface and ramose pubescence in distal half, not annulate with simple oblique hairs, the posteriomedian margin of the

pygidial tergum, with median incision, not straight, pygidial setae *st,* cylindrical, not clavate, and the shape of the setae b_1 of the pygidial sternum, no end-swelling, with end-swelling.

DESCRIPTION

Adult male holotype (and paratypes)

Length: (0.61–)0.90 mm.

Head (Figure 10A): tergal setae of medium lengths, cylindrical, blunt, annulate; their relative lengths (holotype only), 1st row: a_1 = 10, a_2 = 11; 2nd row: a_1 = 13, a_2 = 18, a_3 = 15; 3rd row: a_1 = 13, a_2 = 16, 4th row: a_1 = 15, a_2 = ?, a_3 = 23, a_4 = 18; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 0.8, 2nd row 0.6, 3rd row 1.3, 4th row 1.1. Temporal organs ovoid in tergal view, pore and pistil not ascertained. Head cuticle glabrous.

Antennae (Figure 10B): segment 4 with 5 setae of medium lengths, cylindrical, blunt, annulate; their relative lengths: p = 100, p' = 5, p'' = r = 3, p'''. Tergal seta p (1.8–)1.9 times as long as tergal branch *t.* The latter fusiform, 2.5(–2.6) times as long as its greatest diameter and as long as sternal branch *s*, that branch 2.4 times as long as its greatest diameter; anterodistal corner of *s* truncate. Seta q as seta p of 4th segment but thicker, 1.2(–1.3) times as long as the length of *s.* Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 9(–11), F_2 = 36(–43), bs_2 = 7, F_3 = 84(–87), bs_3 = 9(–11). F_1 3.3(–3.6) times as long as *t,* F_2 and F_3 1.2(–1.4) and 2.9 times as long as *s* respectively. Distal calyces hemispherical; distal part of flagella axes widened only between calyx and first lamella. Globulus *g* almost spherical with short stalk, 1.3(–1.4) times as long as wide, ~8 bracts, capsule with flattened bottom, conical; width of *g* 0.5(–0.6) of the greatest diameter of *t.* Bracts pubescent, other parts of antennae glabrous.

Trunk (Figures 10C, D): setae of collum segment (Figure 10C) furcate, primary branch cylindrical, blunt, annulate, secondary branch rudimentary, glabrous; sublateral setae 2.3(–2.4) times as long as submedian ones; sternal process lengthened anteriorly and with distinct incision, appendages nearly ball-shaped, caps hemispherical with collar; process and appendages with short pubescence.

Setae on tergites as setae on head; 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Submedian posterior setae on VI (Figure 10D) (0.6–)0.7 of interdistance and 3.2(–3.5) times as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figure 10E): relative lengths: T_1 = 100, T_2 = 99, T_3 = 102 and 104 (Figure 10E), T_4 = 102(–104), T_5 = (121–)125; all with thin, straight, simple axes, T_5 and proximal parts of T_1–T_4 with short, oblique, simple hairs, distal halves of T_1–T_4 with long, ramose hairs arranged in whorls.

Genital papillae (Figure 10F): glabrous, rounded distally, 1.4 times as long as greatest diameter; seta 0.7 of the length of papilla.

Legs (Figures 10G, H): setae on coxa (Figure 9G) and trochanter of 9th pair of legs simple cylindrical, blunt, annulate. Corresponding setae on more anterior legs with rudimentary secondary branch. Tarsus of leg 9 (Figure 10H) straight tapering, (2.8–)3.2 times as long as its greatest diameter. Setae cylindrical, blunt, proximal one slightly tapering, with oblique pubescence, distal one annulate; proximal seta 0.4 of the length of tarsus and (1.9–)2.2 times as long as distal seta. Cuticle of tarsus densely pubescent.

Pygidium (Figure 10 I).

Tergum: posterior margin between a_2 with broad low lobe with shallow posteriomedian incision. Relative lengths of setae: a_1 = 10, a_2 = 34(–36), a_3 = (82–)86, *st* = 3; all setae cylindrical, a_1 annulate, curved inward, a_2 and a_3 with oblique pubescence, the latter curved inward, *st* rudimentary, converging, glabrous. Distance a_1–a_1 2.2(–2.4) times as long as a_1; distance a_1–a_2 3.0(–4.0) times as long as distance a_2–a_3; distance *st*–*st* ≈10 times as long as *st* and about as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 shallowly indented and with broad two-parted lobe below anal plate; relative lengths of setae (pygidial a_1 = 10): b_1 = 50, b_2 = 20(–23), b_3 = 10; setae cylindrical, striate–annulate; b_1 0.9 of interdistance; b_2 (0.9 of –) as long as distance b_2–b_2, b_3 0.3 of interdistance.

Anal plate (Figure 10 I) narrowest anteriorly, linguiform, 1.1 times as long as broad, with rounded posterolateral corners and straight posterior margin, two somewhat clavate diverging appendages pointing backward from posterior part of sternal side, appendages ≈0.5 of the length of plate.

ETYMOLOGY

From the Greek para = beside, near, and the epithet maoriorum (referring to the striking similarity with *A. maoriorum* Remy).

Genus Decapauropus Remy, 1931

Decapauropus Remy 1931: 67–83.

TYPE SPECIES

Decapauropus cuenoti Remy, 1931, by original designation.

Decapauropus adiaphorus sp. n.

urn:lsid:zoobank.org:act:B7762776-BDF7-4C2D-B137-355CBCF45616

Figure 11A–G

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 15 October 1980 (WAM T125498).

Paratypes

Australia: ***Western Australia*****:** 3 ad. 9(□), 1 juv. 6, same data as holotype except in litter, 15 April 1981 (WAM T125499).

Non-types

Australia: ***Western Australia*****:** 5 ad. 9(1□,4□), same data except in litter, 21 July 1981; 2 ad. 9(□, □), same data except in soil, 25 July 1980; 7 ad. 9(2□,4□, 1 sex?), 2 juv. 3, same data except 25 May 1981; 1 ad. 9(□), same data except 29 June 1981; 1 ad. 9(□), same data except 28 July 1981; 2 ad. 9(□,□), same data except 25 August 1981; 1 subad. 8(□), 3 juv. 3, same data except 31 August 1981.

DIAGNOSIS

Because *D. adiaphorus* sp. nov. has several characters in the head, tergites, bothriotricha, legs and pygidium

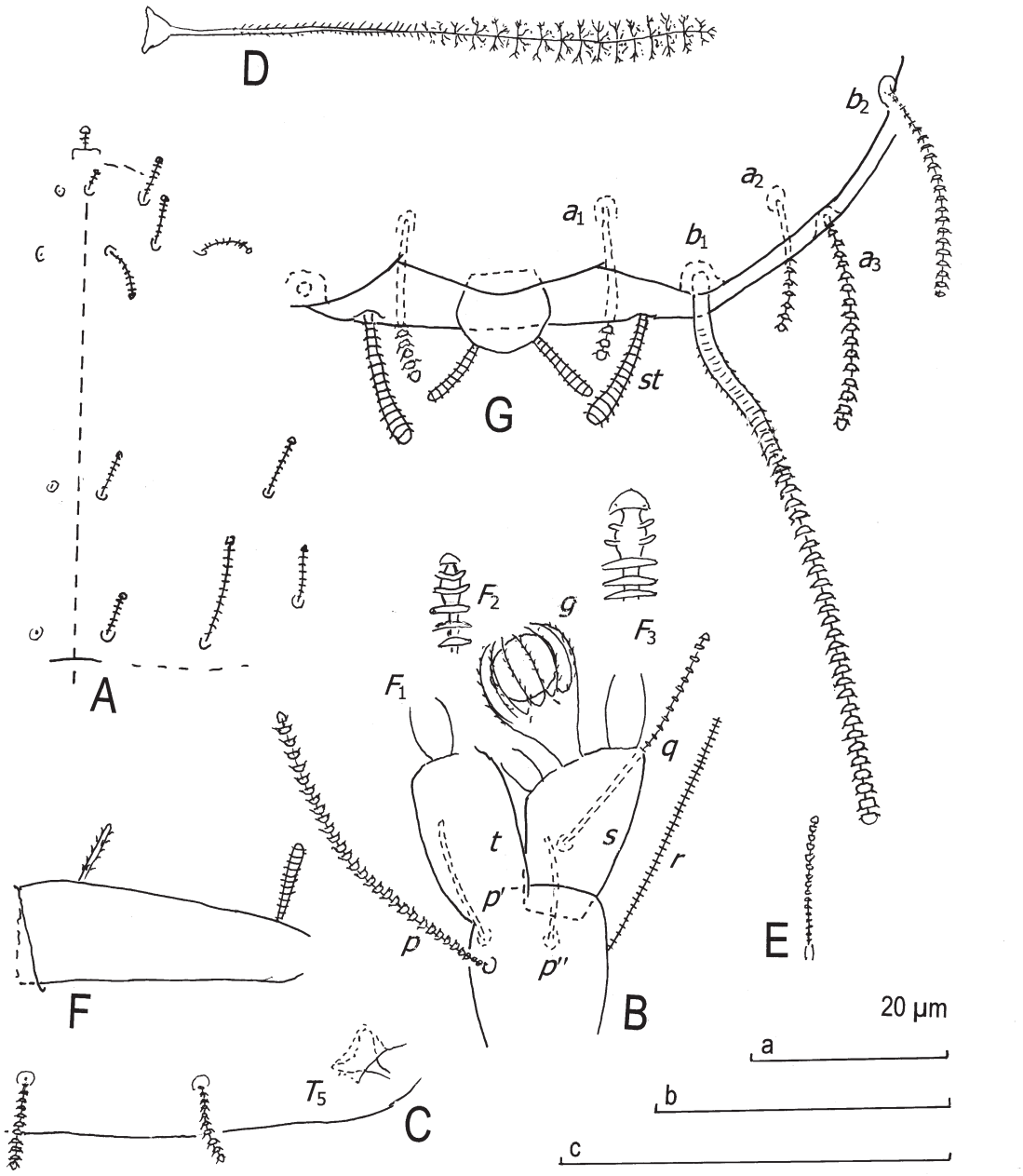

FIGURE 11 *Allopauropus paramaoriorum* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, left antenna, sternal view: C, collum segment, median and left part, sternal view; D, tergite VI, posterior part; E, T_3; F, left genital papilla, anterior view; G, seta on coxa of leg 9; H, tarsus of leg 9; I, pygidium, posteriomedian and left part, sternal view. Pubescence only partly drawn in D, H. Scale a: Figure E, b: Figures A, D, F–H; c: Figures B, C, I.

occurring in many species the affinities now are impossible to trace. It is, however, well delimitated from other species in the genus with similar anal plate by the following character combination: the anterior and submedian setae of the head are short, the antennal globulus *g* is large with stout base and the setae of the pygidium are all of moderate length and annulate.

DESCRIPTION

Adult female holotype (and paratypes)

Length: (0.46–)0.52(–0.59) mm.

Head (Figure 11A): setae on the tergal side cylindrical, striate–annulate. Relative lengths of setae (holotype only), 1st row: a_1 = 10, a_2 = 15; 2nd row: a_1 = 23, a_2 = 27, a_3 = 25; 3rd row: a_1 = 20, a_2 = 28; 4th row: a_1 = 25, a_2 = 55, a_3 = 28, a_4 = ?; lateral group setae not studied. Ratio a_1/a_1–a_1 in all rows 0.7. Temporal organs small, in tergal view ovoid, their length as long as their shortest interdistance; small pore near base of l_1. Head cuticle glabrous.

Antennae (Figure 11B): segment 4 with four cylindrical annulate–striate setae; their relative lengths: p = 10, p' = p'' = 3(–4), r = (6–)7. Tergal seta p 1.9(–2.2) times as long as tergal branch t. The latter branch fusiform, 1.5(–1.7) times as long as its greatest diameter and 0.9(–1.0) of the length of sternal branch s, that branch (1.4–)1.5(–1.6) times as long as its greatest diameter; posterodistal corner distinctly truncate. Seta q cylindrical striate–annulate, 1.6(–1.9) times as long as s. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = (7–)8; F_2 = (29–)33(–35), bs_2 = 4(–5); F_3 = (83–)87, bs_3 = 8(–9). F_1 (5.7–)6.6 times as long as t, F_2 and F_3 (1.6–)1.7(–2.0) and (4.0–)4.4 times as long as s respectively. Distal calyces helmet-shaped, distal part of flagella axes widened fusiformly. Globulus g large with stout base, pyriform, (1.3–)1.4 times as long as wide, ≈12 bracts, capsule spherical; width of g 0.9(–1.1) of the greatest diameter of t. Antennae glabrous.

Trunk (Figure 11C): collum segment not studied.

Setae on tergites as setae on the head, 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 11C) 0.5 of interdistance and 0.5(–0.7) of the length of pygidial setae a_1.

Bothriotricha (Figure 11D): relative lengths: T_1 = 100, T_2 = (104–)110), T_3 = (89–)114 (Figure 11D), T_4 = (104–)114(–115), T_5 = (117–)123(–151); axes simple, thin, straight. Pubescence hairs on proximal halves of T_1–T_4 and whole the T_5 very short oblique, on distal halves of T_1–T_4 longer ramose and whorled.

Legs (Figure 11E, F): legs short. Setae on coxa and trochanter (Figure 11 E) of legs 1–9 simple, cylindrical, blunt, annulate. Tarsus of leg 9 (Figure 11F) tapering, (2.7–)2.9(–3.4) times as long as its greatest diameter. Setae cylindrical, blunt, annulate–striate, proximal seta 0.2 of the length of tarsus and 0.7 of the length of distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 11G).

Tergum: posterior margin straight. Relative lengths of setae: a_1 = 10, a_2 = (7–)9, a_3 = (11–)12, st = 6; setae curved inward, a-setae cylindrical, blunt, annulate, st somewhat clavate striate; st converging. Distance a_1–a_1 (0.9–)1.1 times as long as a_1; distance a_1–a_2 ≈(2.5–)3.5 times as long as distance a_2–a_3; distance st–st (2.2–)2.3(–2.9) times as long as st and 1.4(–1.7) times as long as distance a_1–a_1.

Sternum: posterior margin indented and with low rounded lobe below base of anal plate. Relative lengths of setae (pygidial a_1 = 10): b_1 = (29–)37(–41), b_2 = (14–)15, setae cylindrical, blunt, annulate–striate, b_1 (1.3–)1.5 times as long as interdistance, b_2 0.8 of distance b_1–b_2.

Anal plate directed posteriorly, narrowest anteriorly, short, linguiform, (1.1–)1.2 times broader than long, posterior margin rounded and with two diverging cylindrical striate appendages protruding from posterolateral margin, length of appendages about as long as plate.

ETYMOLOGY

From the Greek adiaphorus = indifferent, neutral (referring to the many wide spread characters).

Decapauropus aegyptiacus (Remy, 1950)

Allopauropus (Decapauropus) aegyptiacus Remy 1950b: 39–41, figure. 2 A, C; Remy, 1958: 62; Greenslade and Scheller 2002: 6, 7.

DISTRIBUTION

Queensland, Gordonvale. *Decapauropus aegyptiacus* is also known from U.S.A., Madagascar, Réunion, Mauritius and Sri Lanka.

Decapauropus attenuatus Scheller, 2009

Decapauropus attenuatus Scheller 2009b: 296–299, figures 39–50; Scheller, 2009b: 292-294.

Allopauropus (Allopauropus) n. sp. 4: Greenslade, 2008: 156.

DISTRIBUTION

Tasmania, in the northwest: Cradle Mountain; in the southeast: Big Sassy Creek and Mt Mangana on Bruny Island. Not known outside Australia.

Decapauropus bipertitus sp. nov.

urn:lsid:zoobank.org:act:57F8D45E-1F79-4440-8C84-264D789318FB

Figure 12A–I

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 15 October 1980 (WAM T125500).

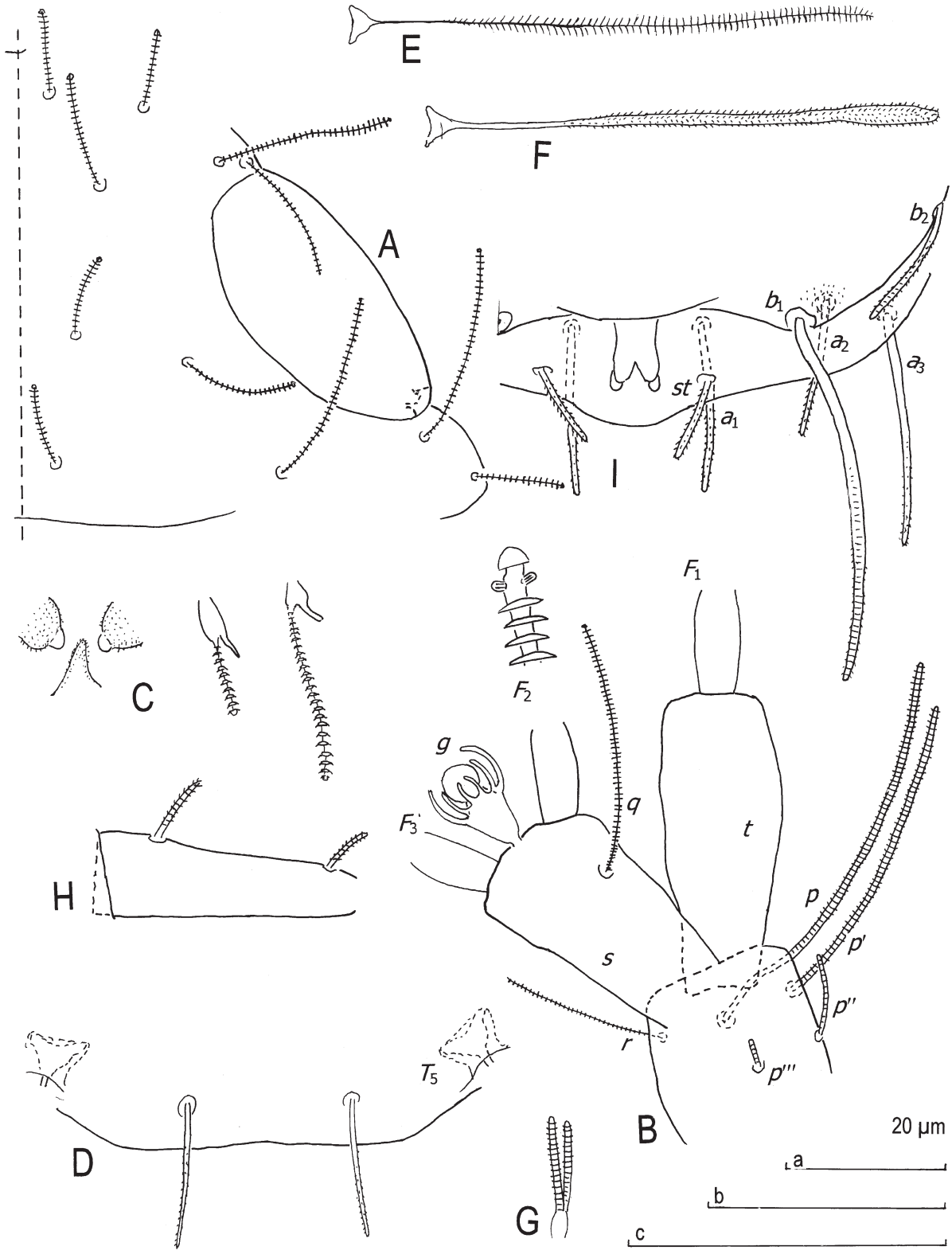

FIGURE 12 *Decapauropus bipertitus* sp. nov., holotype ad. 9(□): A, head, median and right part, tergal view; B; right antenna, sternal view; C, collum segment; D, tergite VI, posteriomedian part; E, T_1; F, T_3; G, seta on coxa of leg 9; H, tarsus of leg 9; I, pygidium, posteriomedian and left part, sternal view. Scale a: Figures E, F; b: Figures A, C, D, G–I; c: Figure B.

Paratypes

Australia: *Western Australia*: 2 ad. 9(□), same data as holotype (WAM T125501).

Non-types

Australia: *Western Australia*: 1 ad. 9(□), same data except, 23 October 1980; 1 ad. 9(□), same data except 22 September 1981; 3 ad. 9(□), same data except 29 September 1981.

DIAGNOSIS

Decapauropus bipertitus sp. nov. has distinct similarities with *D. terrestris* Scheller from Tasmania (Scheller 2009b). They are distinguished by the shape of the setae of the collum segment, furcate with short glabrous secondary branches in *D. bipertitus*, simple in *D. terrestris*, the bothriotricha T_3, thickest in distal half, not distal half very thin, the posterior lobe of the pygidial tergum, low, not semi-circular, and the shape of the anal plate, of even breadth, not narrowest anteriorly. There may be connections also to *D. cognatus* Remy from the U.S.A. (Remy 1956e) and to some species described from Madagascar by Remy (1956d), such as *D. barroisi, D. delphini, D. lobiger* and *D. vicinus*. The anal plate is also similar to that in *D. hispidus* sp. nov. described below, but the two species are easily distinguished by good antennal characters and by the shape of the distal thickening of the bothriotricha T_3, more pronounced in *D. hispidus* than in *D. bipertitus,* and by the shape of the posterior part of the anal plate, distinct V-shaped incision and short appendages, not shallow incision and appendages almost as long as the plate.

DESCRIPTION

Adult female holotype (and paratypes)

Length: (0.51–)0.60(–0.62) mm.

Head (Figure 12A): tergal setae of medium length, thin, blunt, striate. Relative lengths of setae, 1st row: a_1 = 10, a_2 = (9–)10; 2nd row: a_1 = (12–)14(–15), a_2 = (19–)21, a_3 = (14–)17; 3rd row: a_1 = (9–)11, a_2 = 14(–16); 4th row: a_1 = 10(–11), a_2 = (20–)23(–25), a_3 = (21–)23, a_4 = 11(–13); lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 1.0(–1.1), 2nd (0.6–)0.7, 3rd (0.7–)0.8(–0.9) and 4th row 1.2(–1.3). Temporal organs in tergal view ovoid, length (0.7–)0.8 of shortest interdistance; small pistil posteriorly. Head cuticle glabrous.

Antennae (Figure 12B): segment 4 with 5 cylindrical, blunt, striate setae, their relative lengths: p = 10, p' = (6–)7, p'' = (2–)3, r = (3–)4. The p''' very short, r thinnest. Tergal seta p 1.4–1.5(–1.7) times as long as tergal branch t. The latter 2.4(–2.9) times as long as its greatest diameter and (1.0–)1.1 times as long as sternal branch s, that branch 1.7(–2.1) times as long as its greatest diameter; anterodistal corner of s weakly truncate. Seta q as p and p' of 4th segment, (1.1–)1.3 times as long as the length of s, only a little thinner. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = (9–)11; F_2 = (74–)83(–89), bs_2 = (9–)11; F_3 = (79–)90, bs_3 = 10(–12). F_1 (2.8–)2.9(–3.2) times as long as t, F_2 and F_3 (2.5–)2.7 and (2.5–)2.9 times as long as s respectively. Distal calyces hemispherical, distal part of flagella axes inconsiderably widened below calyces. Globulus g large, pyriform, 1.4(–1.7) times as long as wide, ≈8 bracts of different lengths, capsule spherical with thick stalk; width of g (0.6–)0.7 of the greatest diameter of t. Antennae glabrous.

Trunk (Figures 12C, D): setae of collum segment (Figure 12C) furcate, main branch cylindrical, blunt, annulate, secondary branch rudimentary, glabrous, sublateral setae 1.7(–1.8) times as long as submedian ones, sternite process narrow anteriorly, tapering distally (or with very small apical incision), appendages with hemispherical caps, process and appendages pubescent.

Setae on tergites as submedian setae of head, inconsiderably lengthening posteriorly; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on tergite VI on broad posterior lobe (Figure 12D) (0.7–)0.9 of interdistance and (0.7–)0.9 of the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures 12E, F): relative lengths: T_1 = 100, T_2 = (104–)106(–107), T_3 = (94–)103(–107), T_4 = (124–)125(–127), T_5 = (150–)162(–170); axes simple, all but T_3 thin, pubescence hairs simple, oblique, except on most distal part of T_1 (Figure 12E), T_2, and T_4, there erect; axes of T_3 widening outward, thickest in subdistal part, there longish swelling, pubescence dense, hairs short oblique (Figure 12F).

Legs (Figures 12G, H): setae on coxa (Figure 12G) and trochanter of leg 9 furcate, branches cylindrical, blunt, striate, secondary branch somewhat shorter than main branch. Tarsus of leg 9 (Figure 12H) tapering, (3.2–)3.3(–3.5) times as long as its greatest diameter; setae cylindrical, blunt, striate, proximal seta (0.2–)0.3 of the length of tarsus and 1.5(–1.6) times as long as distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 12 I).

Tergum: posterior margin rounded with low lobe between *st*. Relative lengths of setae: a_1 = 10, a_2 = (8–)9, a_3 = 14(–15), *st* = 6(–7); setae almost straight, cylindrical, blunt, with short pubescence, *st* cylindrical(–a little clavate), with short pubescence, a_2 and *st* converging. Distance a_1–a_1 0.8(–0.9) of the length of a_1; distance a_1–a_2 1.7(–2.1) times as long as distance a_2–a_3; distance *st*–*st* 1.8(–2.0) times as long as *st* and 1.3(–1.5) times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 indented shallowly and with low broad lobe below anal plate. Relative lengths of setae (pygidial a_1 = 10): b_1 = (20–)21(–25), b_2 = 8(–10); setae cylindrical blunt annulate, b_2 curved inward and converging; b_1 (1.1–)1.2(–1.3) times as long as interdistance; b_2 0.7(–0.9) of distance b_1–b_2.

Anal plate (1.4–)1.5(–1.6) times as long as broad, lateral margins somewhat concave, posterior part divided into two short thick branches by small V(–U)-shaped indentation, two short clavate appendages protruding backward-downward from sternal side of branches, appendages ~1/4 of the length of plate.

ETYMOLOGY

From the Latin bipertitus = two-parted (referring to the posterior part of the anal plate).

Decapauropus brevitas sp. nov.

urn:lsid:zoobank.org:act:8BB53B3C-CF06-4CA7-BA06-1567DACCAE8D

Figure 13A–I

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 25 February 1981 (WAM T125502).

Paratypes

Australia: ***Western Australia*:** 1 ad. 9(□), same data as holotype (WAM T125503); 1 ad. 9(□), same data except 20 September 1980 (WAM T125504); 1 ad. 9(□), same data except in litter, 19 January 1981 (WAM T125505).

Non-types

Australia: ***Western Australia*:** 1 subad. 8(□), same data except in soil, 18 January 1981; 1 ad. 9(□), same data except 15 April 1981; 1 ad. 9(□), 2 subad.8(□), 1 juv. 6, same data except 28 July 1981; 2 ad. 9(□), 2 juv. 6, same data except 21 September 1981.

DIAGNOSIS

Decapauropus brevitas sp. nov. seems to be closest to *D. bellingeri* Remy from Jamaica (1958) because of similarities in the antennae, pygidial setae and anal plate. They are separated by the shape of the tergal antennal branch, less than twice longer than its greatest diameter in *D. brevitas,* 2.5 times as long as that distance in *D. bellingeri*, and the shape of the posterior margin of the pygidial tergum, straight, not with distinct, rounded bulge, the bothriotricha T_3, thin axes with long, branched pubescence hairs and distal swelling, not thick axes, short pubescence and distal swelling absent.

DESCRIPTION

Adult female holotype (and paratypes)

Length: (0.75–)1.05 mm.

Head (Figure 13A): tergal setae of medium length, blunt, annulate–striate. Relative lengths of setae, 1st row: a_1 = 10, a_2 = (10–)12; 2nd row: a_1 = (9–)12, a_2 = (13–)14(–16), a_3 = (10–)13; 3rd row: a_1 = (10–)12, a_2 = (17–)18(–19); 4th row: a_1 = (11–)13, a_2 = 15(–18), a_3 = 18(–22), a_4 = 18(–20); lateral group setae (one paratype); $l_1 = l_2$ = 20, l_3 = 25. Ratio a_1/a_1–a_1 in 1st row 0.9(–1.0), 2nd (0.7–)1.0, 3rd and 4th rows (0.7–)0.9. Temporal organs in tergal view broadest anteriorly, 1.8(–1.9) times as long as shortest interdistance; small pistil posteriorly. Head cuticle glabrous.

Antennae (Figure 13B): segment 4 with 5 cylindrical setae, *p, p′, p″* and *r* annulate, *u* rudimentary; their relative lengths (holotype only): *p* = 10, *p′* = 4, *p″* = *r* = (4–)5; *r* thinnest, densely annulate. Tergal seta *p* (1.7–)1.9(–2.1) times as long as tergal branch *t*. The latter branch widest in distal half, (1.5–)1.8 times as long as its greatest diameter and 0.8(–0.9) of the length of sternal branch *s*, that branch (1.6–)1.7(–1.8) times as long as its greatest diameter; anterodistal corner of *s* truncate. Seta *q* as *p′* of 4th segment, 1.3(–1.5) times as long as the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = (8–)10; F_2 = (33–)34(–38), bs_2 = 4(–5); F_3 = 84(–94), bs_3 = (9–)10. F_1 (5.5–)6.1(–6.3) times as long as *t,* F_2 and F_3 1.7(–1.9) and (4.2–)4.3(–4.5) times as long as *s* respectively. Distal calyces somewhat flattened; distal part of flagella axes distinctly widened below calyces in F_1, less in F_2 and F_3. Globulus *g* large pyriform, 1.3(–1.4) times as long as wide, ≈10 bracts, capsule spherical with thick stalk; width of *g* (0.8–)1.0 of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 13C, D): setae of collum segment (Figure 13C) simple, cylindrical, blunt, densely annulate, sublateral ones 2.9(–4.1) times as long as submedian ones, sternite process small with anterior incision, appendages well rounded with hemispherical caps, process and appendages glabrous.

Setae on tergites as posteriomedian setae of head, inconsiderably lengthening posteriorly; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 13D) 0.8 of interdistance and 1.2 times as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures 13E, F): relative lengths of bothriotricha: T_1 = 100, T_2 = (93–)103(–108), T_3 = (95–)100(–120), T_4 = (96–)100(–112), T_5 = (129–)142(–144); axes thin, pubescence hairs simple oblique on proximal parts, in the middle and distally long erect branched and arranged in whorls (Figures 13E, F); T_3 with distal end-swelling, not fully 0.1 of the length of bothriotrix and with long branched pubescence.

Legs (Figures 13G, H): setae on coxa and trochanter of leg 9 blunt, annulate, simple on coxa, furcate, with short secondary branch on trochanter (Figure 13G). Tarsus of leg 9 (Figure 13H) tapering, (2.5–)2.7(–3.0) times as long as its greatest diameter. Setae cylindrical blunt annulate, proximal seta 0.2 of the length of tarsus and 0.8 of the

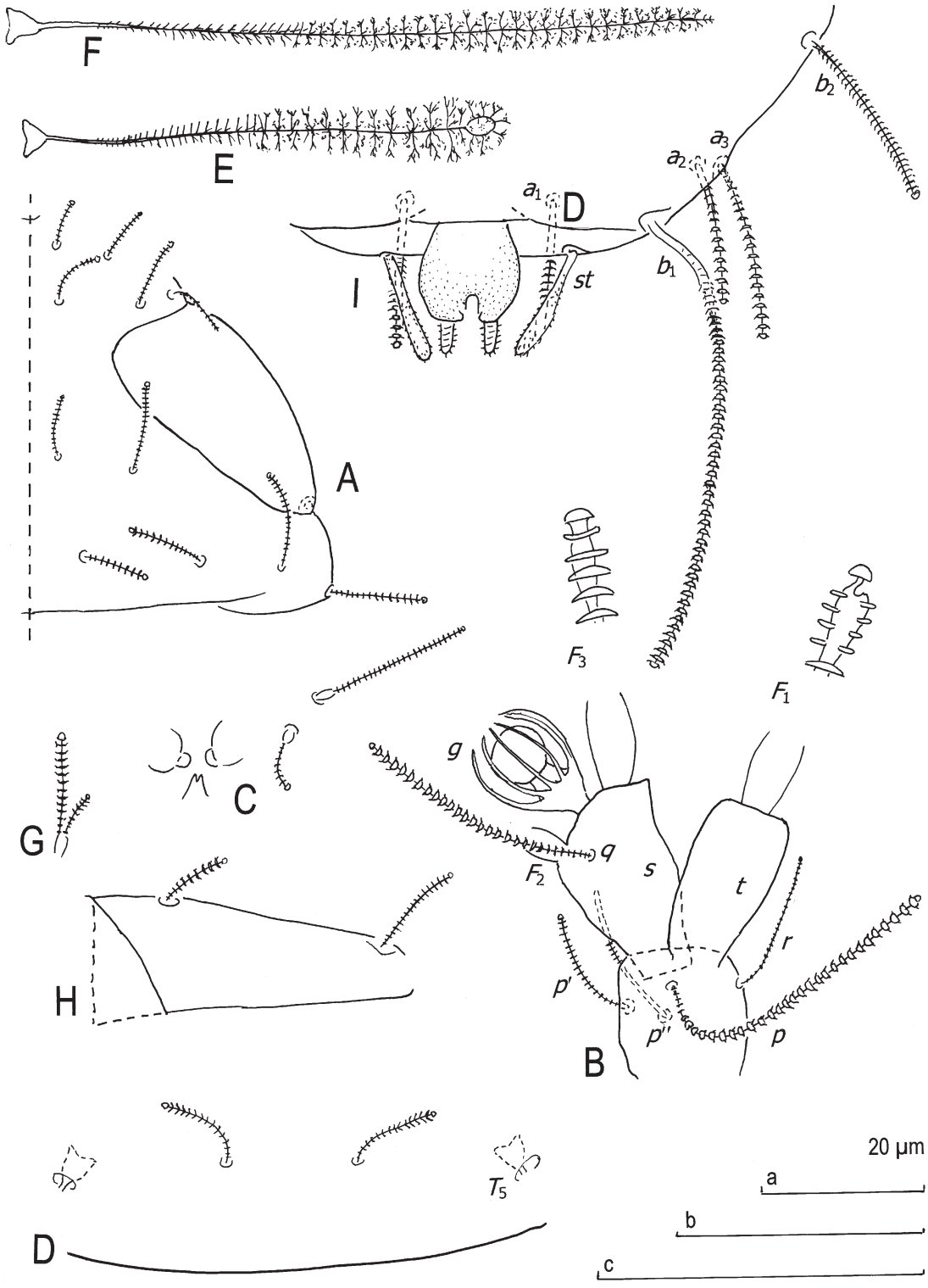

FIGURE 13 *Decapauropus brevitas* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B; right antenna, tergal view; C, collum segment, median and left part, sternal view; D, tergite VI, posteriomedian part; E, T_3; F, T_5; G, seta on trochanter of leg 9; H, tarsus of leg 9; I, pygidium, posteriomedian and left part, sternal view. Scale a: Figures A, D–G; b: Figure H; c: Figures B, C, I.

length of distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 13 I).

Tergum: posterior margin straight between *st*. Relative lengths of setae: a_1 = 10, a_2 = (8–)10, a_3 = 12(–13), *st* = (7–)8; *a*-setae cylindrical blunt annulate, *st* clavate, with short pubescence, converging. Distance a_1–a_1 1.1(–1.2) times as long as a_1; distance a_1–a_2 1.8(–2.0) times as long as distance a_2–a_3; distance *st*–*st* 2.1(–2.5) times as long as *st* and (1.4–)1.5 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 straight (– somewhat indented). Relative lengths of setae (pygidial a_1 = 10): b_1 = (29–)32(–37), b_2 = 11(–14); setae cylindrical, annulate, b_2 curved inward and diverging; b_1 (1.3–)1.4(–1.5) times as long as interdistance; b_2 (0.9–) as long as distance b_1–b_2.

Anal plate large, narrowest anteriorly, (1.1–)1.3 times as long as broad, lateral margins convex, posterior part divided into two short branches by small U(–V)-shaped incision, two short, thick, cylindrical, blunt, pubescent appendages posteriorly, the latter 0.3(–0.4) of the length of the plate.

ETYMOLOGY

From the Latin brevitas = shortened (referring to the shape of the posterior part of the anal plate and its appendages).

Decapauropus burrowesi (Harrison, 1914) n. comb.

Pauropus burrowesi Harrison, 1914: 623, 624, plate 71, figure 17; Greenslade and Scheller 2002: 11, 12.

REMARKS

The type specimen (KS 042587) in the collections of Australia Museum, Sydney, is opaque and cannot give any information to amend Harrison's description. *Decapauropus burrowesi* is valid but may be confused with *D. mortensenii (*Hansen, 1902). A study of the type specimens of that species from Thailand in Hansen's collection in the Zoological Museum, Copenhagen, shows that the two species have both striking similarities and clear differences. Especially there are good differences in the shape of the *st,* blunt, evenly clavate in *D. burrowesi*, pointed and with lanceolate distal part in *D. mortensenii*, and the anal plate, the two posterior extensions deeply incised in their inner margins, not even and straight, a thin apical fold only. *Decapauropus mortensenii* shows a high degree of variation and the two species need further investigation. Maybe there are more than two species in the group. *Decapauropus burrowesi* is not known outside its type locality but *D. mortensenii* has at present been reported from Egypt, Mauritius, Réunion, Seychelles, Sri Lanka, Thailand, Indonesia and New Caledonia.

DISTRIBUTION

New South Wales, Sydney, Broken Bay. Not known outside Australia.

Decapauropus camurus sp. nov.

urn:lsid:zoobank.org:act:0D7BD9C3-6676-4D40-A9BB-68744317E3E5

Figure 14A–I

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 25 July 1980 (WAM T125506).

Paratypes

Australia: ***Western Australia*:** 2 ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 19 May 1981 (WAM T125507); 3 ad. 9(1□, 2□), Murray River site, 28 July 1981 (WAM T125508).

Non-types

Australia: ***Western Australia*:** 1 juv. 6, same data as holotype, in litter, 21 July 1981; 4 ad. 9(2□, 2□), same data except in soil; 3 juv. 5, same data except 14 September 1980; 1 ad. 9(□), same data except 15 April 1981; 1 ad. 9(□), same data except 18 April 1981; 1 juv. 5, same data except 25 May 1981; 3 ad. 9(1□, 2□), same data except 27 May 1981; 1 ad. 9(□), 3 juv.5, 1 juv. 3, same data except 28 July 1981; 1 ad. 9(□), 2 juv. 3, same data except 26 August 1981; 1 ad. 9(□), Yarragil Brook site, in soil, 28 August 1981; 1 ad. 9(sex?), 3 juv. 6, same data except 21 September 1981; 1 ad. 9(□), 1 juv. 5, same data except 11 December 1981.

DIAGNOSIS

Most of the characters of *D. camurus* sp. nov. are widely spread in the genus but the similarities with *D. pumilio* Remy from Réunion (1957a) may indicate relationship. They can be distinguished by the length of the antennal setae *p* and *r*, *p* at least twice longer than *r* in *D. camurus*, $p \approx r$ in *D. pumilio*, the antennal globulus *g* has distinct narrow stalk, not very short, and the pubescence of the bothriotricha T_1–T_4 have long, branched pubescence, not short and simple.

DESCRIPTION

Adult female holotype (and paratypes)

Length: (0.47–)0.61(–0.70) mm.

Head (Figure 14A): tergal setae of short–medium length, subcylindrical, blunt, annulate. Relative lengths

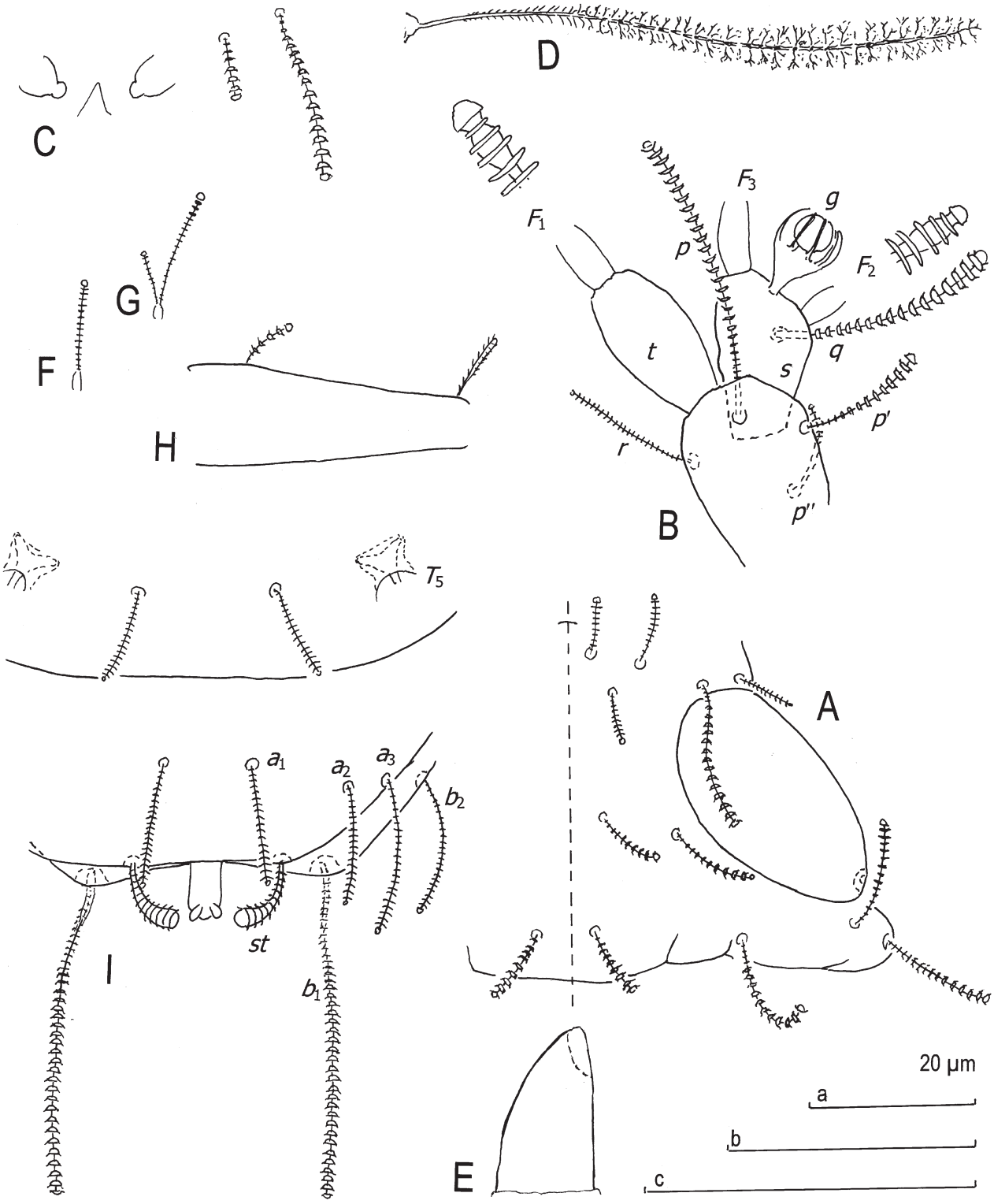

FIGURE 14 *Decapauropus camurus* sp. nov., A–D, F–I holotype ad. 9(□), E paratype ad. 9(□): A, head, median and right part, tergal view; B, left antenna, tergal view; C, collum segment, median and left part, sternal view; D, T_3; E, right genital papilla; F, seta on coxa of leg 9; G, seta on trochanter of leg 9; H, tarsus of leg 9; I, pygidium and posteriomedian part of tergite VI, tergal view. Scale a: Figures D, E; b: Figures A, C, F–I; c: Figure B.

of setae, 1st row: a_1 = 10, a_2 = (10–)12(–15); 2nd row: a_1 = 10(–14), a_2 = (24–)27, a_3 = 11(–14); 3rd row: a_1 = (11–)13(–14), a_2 = 16(–20); 4th row: a_1 = (12–)13(–15), a_2 = (22–)24(–30), a_3 = 22(–28), a_4 = (16–)22(–25); lateral group setae (one paratype) l_1 = 30, l_2 = 16, l_3 = 18. Ratio a_1/a_1–a_1 in 1st row (0.8–)0.9, 2nd row 0.6(–0.8), 3rd row (0.8–)1.0, 4th row 1.3(–1.5). Temporal organs ovoid in tergal view, (0.9–)1.1(–1.3) times as long as shortest interdistance; aperture in posterior part anterior of l_2. Head cuticle glabrous.

Antennae (Figure 14B): segment 4 with 4(5) setae, *p, p′* and *p″* somewhat clavate, annulate, *r* cylindrical, blunt, *u,* if any, rudimentary; their relative lengths: *p* = 10, *p′* = (3–)4, *p″* = (2–)3, *r* = (4–)5(–6). Tergal seta *p* (1.8–)2.0(–2.5) times as long as tergal branch *t*. The latter fusiform, (1.8–)2.0(–2.5) times as long as its greatest diameter and 0.9(–1.0) of the length of sternal branch *s*, that branch (1.5–)1.7(–1.8) times as long as its greatest diameter; anterodistal corner of *s* truncate. Seta *q* as *p* of 4th segment but more clavate, 1.4(–1.6) times as long as the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 7(–10); F_2 = (28–)29(–40), bs_2 = 5(–6); F_3 = 70(–89), bs_3 = (7–)8(–9). F_1 (5.1–)6.2(–6.3) times as long as *t,* F_2 and F_3 (1.5–)1.6(–1.8) and (3.8–)4.0(–4.2) times as long as *s* respectively. Distal calyces helmet-shaped; distal part of flagella axes fusiformly widened below calyces. Globulus *g* almost spherical, (1.3–)1.4 times as long as wide, stalk narrow, distinct, ≈8 bracts, capsule subspherical; width of *g* (0.7–)0.8(–0.9) of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 14C, I): setae of collum segment (Figure 14C) simple, somewhat clavate, blunt, annulate; sublateral ones 2.8(–3.3) times as long as submedian ones; sternite process small, pointed; appendages barrel-shaped with strongly convex caps; process and appendages glabrous.

Setae on anterior tergites as posteriomedian setae of head, on posterior tergites cylindrical; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 14 I) 0.7(–0.8) of interdistance and 0.8(–1.1) times as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figure 14D): relative lengths: T_1 = 100, T_2 = (98–)104(–120), T_3 = (116–)132, T_4 = 138(–139), T_5 = 130(–146); all with thin axes, proximal ¼ with short pubescence consisting of simple, oblique hairs, median and distal part of T_1–T_4 with long branched hairs partly arranged in whorls, longest on T_1 and T_2; T_3 (Figure 14D) with thickest axes; simple oblique hairs longest on T_5.

Genital papillae (paratype, figure 14E): conical with rounded outer side, 1.7 times as long as greatest diameter.

Legs (Figures 14F–H): setae on coxa (Figure 14F) and trochanter (Figure 14G) of leg 9 blunt, annulate, the former simple, the latter furcate with secondary branch about half of the length of the primary one. Corresponding setae on more anterior legs simple. Tarsus of leg 9 (Figure 14H) tapering, (2.8–)3.1 times as long as its greatest diameter; setae subcylindrical, blunt, annulate, proximal one 0.3(–0.4) of the length of tarsus and (1.2–)1.5 times as long as distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 14 I).

Tergum: posterior margin between *st* straight. Relative lengths of setae: a_1 = 10, a_2 = (7–)10, a_3 = (12–)13(–19), *st* = (6–)7(–9); *a*-setae cylindrical, blunt, densely annulate, a_3 somewhat curved inward, *st* clavate striate, curved inward. Distance a_1–a_1 0.7(–0.8) of the length of a_1; distance a_1–a_2 (2.3–)2.7 times as long as distance a_2–a_3; distance *st*–*st* 1.7(–2.2) times as long as *st* and (1.6–)1.7(–2.0) times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with shallow indentation. Relative lengths of setae (pygidial a_1 = 10): b_1 = 26(–38), b_2 = (10–)11(–14); setae cylindrical annulate–striate, b_2 curved inward; b_1 (1.3–)1.4 times as long as interdistance; b_2 (0.8–)1.0(–1.1) as long as distance b_1–b_2.

Anal plate linguiform, (1.5–)1.6(–2.4) times as long as broad, glabrous, lateral sides parallel, posterior margin triangular with rounded end and two short, clavate, diverging appendages protruding from tergal side, length of appendages 0.3(–0.4) of the length of plate.

ETYMOLOGY

From the Latin camurus = crooked, turned inward (referring to the shape of the pygidial setae *st*).

***Decapauropus clavulus* sp. nov.**

urn:lsid:zoobank.org:act:D2377113-E215-43C3-A3D8-49B519770C23

Figure 15A–I

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in litter, 20 June 1981 (WAM T125509).

Paratype

Australia: *Western Australia*: 1 ad. 9(□), same data as holotype except in soil, 27 May 1981 (WAM T125510).

DIAGNOSIS

D. clavulus sp. nov. is well defined by the shape of the anal plate, the bothriotricha T_3, the thick and distinctly

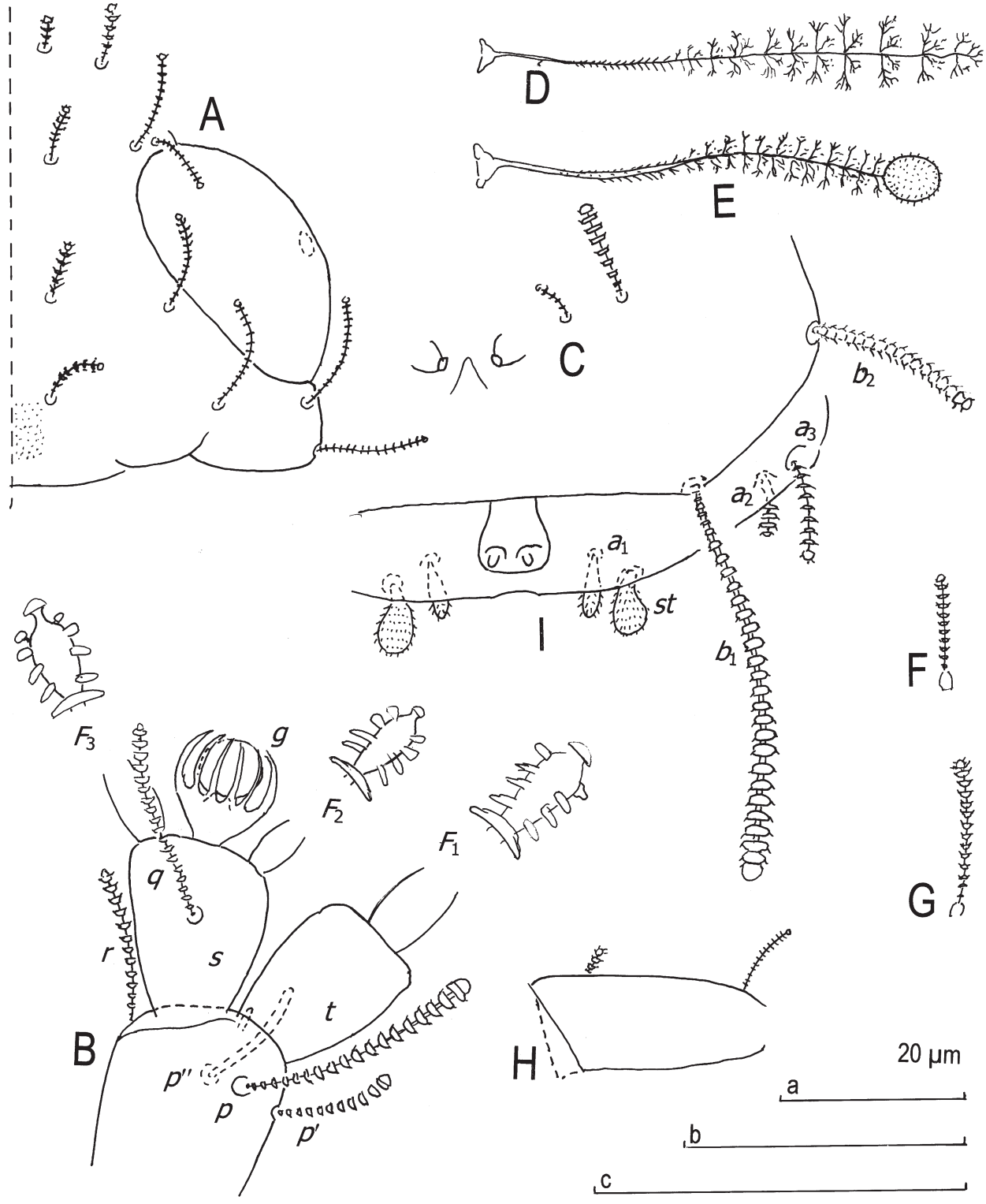

FIGURE 15 *Decapauropus clavulus* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, left antenna, tergal view; C, collum segment, median and left part, sternal view; D, T_1; E, T_3; F, seta on coxa of leg 9; G, seta on trochanter of leg 9; H, tarsus of leg 9; I, pygidium, posteriomedian and left part, sternal view. Scale a: Figures C–E; b: Figures A, F–H; c: Figures B, J.

annulate pygidial setae a_2, a_3, b_1 and b_2, and the peculiar shape of the *st*. At present it is not possible to establish any relationships.

DESCRIPTION

Adult female holotype (and paratype)

Length: 0.40 mm.

Head (Figure 15A): tergal setae short, annulate, subcylindrical. Relative lengths of setae, 1st row: a_1 = 10, a_2 = 16; 2nd row: a_1 = 10, a_2 = 28, a_3 = 20; 3rd row: a_1 = 16, a_2 = 28; 4th row: a_1 = 20, a_2 = 36, $a_3 = a_4$ = 32; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 0.5, 2nd and 3rd rows 0.7, 4th row 0.9. Temporal organs ovoid in tergal view, 1.2 times as long as shortest interdistance; aperture in posterior part indistinct. Head cuticle glabrous.

Antennae (Figure 15B): segment 4 with 5 setae, all but *u* clavate annulate, *u* cylindrical rudimentary; relative lengths of setae: p = 10, p' = 5, p'' = 4, r = 6. Tergal seta p 1.8 times as long as tergal branch *t*. The latter branch widest in distal half, 1.2 times as long as its greatest diameter and 0.7 of the length of sternal branch *s*, that branch (1.4–)1.5 times as long as its greatest diameter; anterodistal corner of *s* truncate. Seta q as p' of 4th segment, as long as the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 9(–10); F_2 = 39(–40), bs_2 = (5–)6; F_3≈78, bs_3 = 8. F_1 6.4 times as long as *t,* F_2 and F_3 1.8 and ≈3.6 times as long as *s* respectively. Distal calyces of F_1 widest, flattened, those of F_2 and F_3 subhemispherical; distal part of flagella axes distinctly widened below calyces. Globulus *g* almost spherical, 1.1 times as long as wide, ≈11 bracts, capsule subspherical; width of *g* 0.9 of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figure 15C): setae of collum segment (Figure 15C) simple, somewhat clavate, annulate, blunt; sublateral ones 2.8 times as long as submedian ones; sternite process small, no anterior incision; appendages conical with small caps; process and appendages glabrous.

Setae on tergites as posteriomedian setae of head, not decreasing in length posteriorly; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI 0.4 of interdistance and 2.2 times as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures 15D, E): relative lengths of bothriotricha: T_1 = 100 (Figure 15D), T_2 = 98, T_3 = 74 (Figure 15E), T_4 = (96–)102, T_5 = (102); all with thin axes, proximal part with short pubescence consisting of simple, oblique hairs, distal 2/3 of T_1, T_2, T_4 and T_5 and half of T_3 with long branched hairs arranged in whorls, longest on T_1, and T_2; T_3 with distal almost circular swelling with very dense pubescence of short, simple, erect hairs.

Legs (Figures 15F–H): setae on coxa (Figure 15F) and trochanter (Figure 15G) of leg 9 simple, cylindrical, annulate. Tarsus of leg 9 (Figure 15H) almost cylindrical, 1.0(–1.1) times as long as its greatest diameter. Setae subcylindrical, annulate, proximal one very short with a few annuls, distal one densely annulate, proximal seta 0.1 of the length of tarsus and 0.4 of the length of distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 15 I).

Tergum: posterior margin between *st* almost straight, very small, shallow, median indentation only. Relative lengths of setae: a_1 = 10, a_2 = (9–)10, a_3 = (15–)16, *st* = (10–)12; a_1 and a_2 short, the former seems to have short pubescence in whorls, the latter and a_3 annulate, a_2 and a_3 somewhat curved inward, *st* strongly clavate, with short pubescence in whorls. Distance a_1–a_1 3.0(3.1) times as long as a_1; distance a_1–a_2 5 times as long as distance a_2–a_3; distance *st*–*st* 3.0(3.6) times as long as *st* and (1.4–)1.5 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 straight. Relative lengths of setae (pygidial a_1 = 10): b_1 = (55–)73, b_2 = (26–)33; setae cylindrical, annulate, b_2 curved inward and strongly diverging; b_1 (0.9)1.1 of interdistance; b_2 as long as distance b_1–b_2.

Anal plate (Figure 15 I) glabrous, narrowest anteriorly, as long as broad (1.1 times as long as broad), with concave lateral margins and straight posterior margin, two short cylindrical glabrous and somewhat diverging appendages pointing downward from distal part, appendages ≈0.1 of the length of plate.

ETYMOLOGY

From the Latin clavulus, club (referring to the shape of the pygidial setae *st*).

***Decapauropus compactus* sp. nov.**

urn:lsid:zoobank.org:act:83DD3C08-F4D1-40C8-8247-1B4446EDBAD5

Figure 16A–K

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 18 April 1981 (WAM T125511).

Paratypes

Australia: *Western Australia*: 4 ad. 9(1□, 3□), 1 subad. 8(□), same data as holotype except 28 June 1981 (WAM T125512); 1 ad. 9(□), same data except 26 August 1981 (WAM T125513); 2 ad. 9(□, □), Murray River site, 21 September 1981 (WAM T125514).

Non-types

Australia: *Western Australia*: 3 juv. 6, 11 km SE of Dwellingup, Murray River site, in litter, 19 January 1981; 1 ad. 9(□), same data except 15 April 1981; 2 ad. 9(□), same data except 23 June 1981; 1 subad. 8(□), same data except 21 July 1981. 4 ad. 9(1□, 3□), same

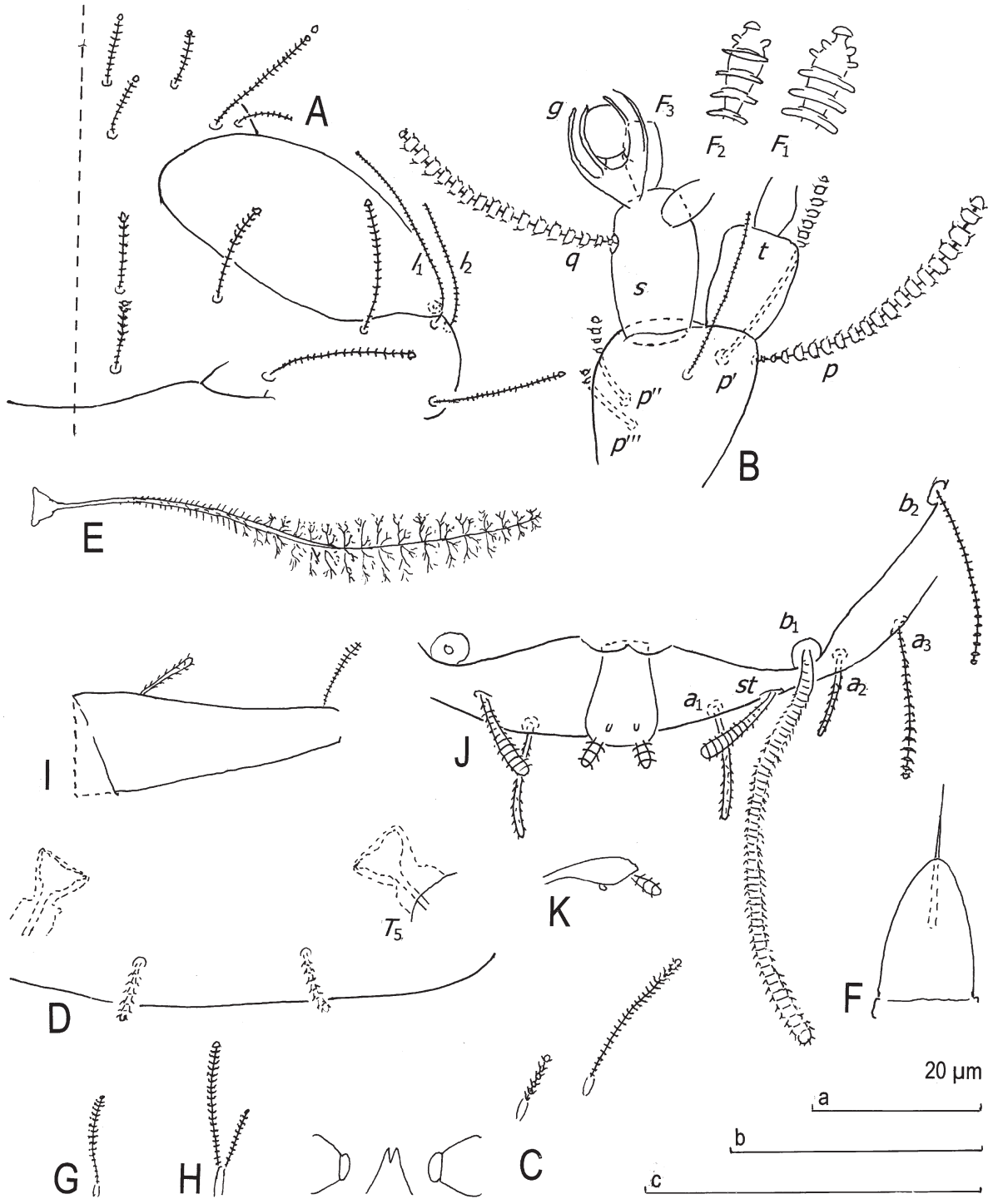

FIGURE 16 *Decapauropus compactus* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, left antenna, outer view; C, collum segment, median and left part, sternal view; D, tergite VI, posterior part; E, T_3; F, right genital papilla, outer view; G, seta on coxa of leg 9; H, seta on trochanter of leg 9; I, tarsus of leg 9; J, pygidium, median and left part, sternal view; K, anal plate, lateral view. Scale a: Figures E, F; b: Figures A, C, D, G–I); c: Figures B, J, K.

data except in soil, 27 May 1981; 1 ad. 9(□), same data except 11 August 1980; 1 ad. 9(□), same data except 23 June 1981; 1 ad. 9(□), same data except 26 August 1981; 1 ad. 9(□), same data except 14 September 1980; 1 juv. 6, same data except 21 September 1981; 2 ad. 9(□), 1 juv. 6, same data except 22 September 1981.

DIAGNOSIS

Some characters of the antennae, bothriotricha and pygidium indicate relationship to *D. everriculiger* and *D. malgasus* both described by Remy and Bittard (1957) from Madagascar. Distinguishing characters are the shape of the antennal globulus *g,* longish in *D. compactus,* subspherical in *D. everriculiger*, and in the pygidium, the shape of the posterior margin of the tergum, evenly rounded, not with distinct posteriomedian lobe, the setae $a_1<a_1–a_1$, not $a_1>a_1–a_1$, and the shape of the anal plate, four appendages, not two.

DESCRIPTION

Adult male holotype (and paratypes)

Length: (0.63–)0.72(–0.80) mm.

Head (Figure 16A): tergal setae short–medium length, blunt annulate, submedian ones subcylindrical, lateral setae cylindrical. Relative lengths of setae, 1st row: a_1 = 10, a_2 = (8–)10(–11); 2nd row: a_1 = 8(-10), a_2 = 18(–20), a_3 = (8–)10(–11); 3rd row: a_1 = 10(–11), a_2 = 13(–17); 4th row: a_1 = 9(–12), a_2 = 20(–24), a_3 = 17(–20), a_4 = 18(–19); lateral group setae (holotype only) l_1 = 25, l_2 = 18, l_3 = ?. Ratio $a_1/a_1–a_1$ in 1st row (0.9–)1.0(–1.2), 2nd row (0.7–)1.0, 3rd row 0.8(–0.9), 4th row (0.9–)1.1(–1.2). Temporal organs large, 1.7(–2.3) times as long as their shortest distance apart; small aperture at posterior margin. Head cuticle glabrous.

Antennae (Figure 16B): segment 4 with 6 setae, *p* somewhat widening distally, the others cylindrical, *p*–*p*‴ thick annulate, *r* thin striate, *u* rudimentary; their relative lengths: *p* = 10, *p*′ = (4–)6, *p*″ = 3(–4), *p*‴ = (2–)3, *r* = (5–)6. Tergal seta *p* (2.6–)2.8(–3.4) times as long as tergal branch *t, r* much longer than *t*. The latter branch almost cylindrical, 1.3(–1.6) times as long as its greatest diameter and 0.8(–0.9) of the length of sternal branch *s*, that branch 1.2(–1.5) times as long as its greatest diameter; anterodistal corner of *s* truncate. Seta *q* as *p* of 4th segment, 1.7(–1.8) times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 7(–8); F_2 = (31–)35(–38), bs_2 = (4–)6; F_3 = (75–)84(–89), bs_3 = 8(–9). F_1 (5.5–)7.4 times as long as *t,* F_2 and F_3 1.9(–2.0) and (3.5–)4.5(-4.7) times as long as *s* respectively. Distal calyces small, distal part of flagella axes below calyces strongly widened. Globulus *g* longish, (1.3–)1.4(–1.6) times as long as wide, ≈7 bracts, capsule subspherical; width of *g* as long as greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 16C, D): setae of collum segment (Figure 16C) simple, cylindrical, blunt, annulate; sublateral ones 2.5(–3.4) times as long as submedian ones; sternite process with anterior incision; appendages conical with hemispherical caps; process and appendages glabrous.

Setae on tergites as posterior setae of head, cylindrical, somewhat shortening posteriorly, 4+4 setae on I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Submedian posterior setae on VI (Figure 16D) 0.4(–0.5) of interdistance.

Bothriotricha (Figure 16E): relative lengths: T_1 = 100, T_2 = (94–)102(–111), T_3 = (96–)113, T_4 = (96–)106(–112), T_5 = (134–)136(–141); all with thin axes, pubescence hairs simple on T_5 and on proximal parts of the others, longer, branched and in whorls on distal halves of T_1–T_4 (T_3 Figure 16E).

Genital papillae (Figure 16F): conical, evenly rounded distally, 1.4(–1.5) times as long as greatest diameter, seta (0.6 of the length of –) as long as papilla.

Legs (Figures 16 G–I): setae on coxa (Figure 16G) and trochanter (Figure 16H) of leg 9 cylindrical annulate, the former simple, the latter furcate, with secondary branch half as long as primary branch. Tarsus of leg 9 (Figure 16 I) distinctly tapering, (2.5–)2.6(–3.0) times as long as its greatest diameter. Proximal seta cylindrical, blunt, striate–annulate, 0.2(–0.3) of the length of tarsus and (0.7–)0.8 of the length of distal seta. The latter somewhat clavate, blunt, densely annulate. Cuticle of tarsus glabrous.

Pygidium (Figures 16J, K).

Tergum: posterior margin rounded. Relative lengths of setae: a_1 = 10, a_2 = (6–)7(–8), a_3 = (10–)13(–15), *st* = (6–)8; *a*-setae cylindrical blunt striate, *st* clavate, indistinctly striate. Distance $a_1–a_1$1.6 times as long as a_1; distance $a_1–a_2$ 1.4 times as long as distance $a_2–a_3$; distance *st*–*st* 3 times longer than *st* and 1.4 times as long as distance $a_1–a_1$. Cuticle glabrous.

Sternum: Posterior margin between b_1 with shallow indentation, small two-parted lobe below anal plate. Relative lengths of setae (pygidial a_1 = 10): b_1 = 31, b_2 = 17; setae cylindrical blunt annulate, b_2 somewhat curved inward; b_1 1.3 times as long as interdistance; b_2 as long as distance $b_1–b_2$.

Anal plate (Figures 16J, K) narrowest anteriorly, linguiform, 1.9 times as long as broad, glabrous, lateral margins straight, posterior margin rounded, distal part of plate cut obliquely downward; four appendages, two short thick blunt striate ones protruding backward from posteriosternal side and two very small ones protruding downward from the middle of sternal side; length of longest appendage 0.5 of the length of plate.

ETYMOLOGY

From the Latin compactus, thick (referring to the posterior part of the anal plate).

Decapauropus convexus Scheller, 2009

Decapauropus convexus Scheller 2009b: 301–303, figures 62–71; Scheller, 2009b: 301–303.

s. n. *Allopauropus (Decapauropus)* sp. 6: Greenslade 2008: 156, 158, 159.

DISTRIBUTION

Tasmania, in the northwest: Savage River. Not known outside Australia.

***Decapauropus duplus* sp. nov.**

urn:lsid:zoobank.org:act:81CC717F-0F9B-472D-8704-26D3D5EB9149

Figure 17A–H

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 25 August 1981 (WAM T125515).

Paratypes

Australia: *Western Australia*: 2 subad. 8(□, □), 1 juv. 6, c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 29 December 1981 (WAM T125516).

DIAGNOSIS

Decapauropus duplus sp. nov. is a small, short-legged species with pentagonal anal plate with small posteriomedian incision and two pairs of appendages of different size and shape. The anal plate characters together with the short tergal antennal branch, the clavate *st* and bothriotricha T_1–T_4 with ramose pubescence in whorls, represent a character combination new to the genus. The relationships of the species cannot yet be traced.

DESCRIPTION

Adult female holotype

Length: 0.58 mm.

Head (Figure 17A): tergal setae of short–medium length, cylindrical, blunt, annulate, their lengths, 1st row: a_1 = 10, a_2 = 11; 2nd row: a_1 = 11, a_2 = 20, a_3 = 17; 3rd row: a_1 = 14, a_2 = 26; 4th row: a_1 = a_3 = 17, a_2 = 29, a_4 = 34; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st and 3rd rows 0.6, 2nd 0.5, 4th row 0.9. Temporal organs ovoid in tergal view, as long as shortest interdistance. Head cuticle glabrous.

Antennae (Figure 17B): segment 4 with 5 setae, all but *u* annulate, *p* and *p′* somewhat clavate, *p‴*, *u* and *r* cylindrical, *u* rudimentary; their relative lengths: *p* = 10, *p′* = *p″* = 3, *r* = 6. Tergal seta *p* 2.5 times as long as tergal branch *t*. The latter branch proportionately short, 1.3 times as long as its greatest diameter and 0.8 of the length of sternal branch *s*, that branch 1.5 times as long as its greatest diameter; anterodistal corner of *s* truncate. Seta *q* as *p′* of 4th segment but cylindrical, 1.3 times long as the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 6; F_2 = 31, bs_2 = 4; F_3 = 67, bs_3 = 6. F_1 7.0 times as long as *t*, F_2 and F_3 1.7 and 3.7 times as long as *s* respectively. Distal calyces of F_2 helmet-shaped, those of F_1 and F_3 a little flattened; distal part of flagella axes inconsiderably widened below calyces. Globulus *g* large pyriform, 1.3 times as long as wide, ≈9 bracts, capsule large subspherical; width of *g* as long as the greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 17C, G): setae of collum segment (Figure 17C) thin, simple, subcylindrical, blunt, annulate, sublateral ones 2.6 times as long as submedian ones; sternite process and appendages not available for study.

Setae on tergites cylindrical, blunt, annulate, not changing in length posteriorly; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 17G) 0.7 of interdistance and 0.8 of the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figure 17D): relative lengths of bothriotricha: T_1 = 100, T_2 = 113, T_3 = 94, T_4 = 117, T_5 = 123; all with thin simple axes, proximal parts and whole the T_5 with short pubescence of simple, oblique hairs, distal 2/3 of T_1–T_4 with long branched hairs on outer halves arranged in whorls (T_3 Figure 17D).

Legs (Figures 17E, F): setae on coxa and trochanter (Figure 17E) of leg 9 simple cylindrical annulate. Tarsus of leg 9 (Figure 17F) short tapering, 2.4 times as long as its greatest diameter. Setae subcylindrical, blunt, annulate, proximal one short, proximal seta not fully 0.2 of the length of tarsus and 0.6 of the length of distal seta. Cuticle of tarsus glabrous.

Pygidium (Figures 17G, H).

Tergum: posterior margin between *st* straight. Relative lengths of setae: a_1 = 10, a_2 = 7, a_3 = 11, *st* = 5; *a*-setae somewhat clavate, blunt, annulate, somewhat curved inward, *st* clavate, striate, curved inward, converging. Distance a_1–a_1 as long as a_1; distance a_1–a_2 four times as long as distance a_2–a_3; distance *st*–*st* 2.9 times as long as *st* and 1.4 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with low rounded lobe below anal plate. Relative lengths of setae (pygidial a_1 = 10): b_1 = 27, b_2 = 11; b_1 cylindrical, annulate–striate, b_2 somewhat clavate, annulate, curved inward, diverging; b_1 1.3 times as long as interdistance; b_2 almost as long as distance b_1–b_2.

Anal plate (Figures 17G, H) faintly pubescent, narrowest anteriorly, spatulate, 1.1 times as long as broad, lateral margins convex, posterior margin rounded and with small, median, shallow V-shaped incision, four somewhat diverging posteriorly directed appendages protruding backward, two long, somewhat clavate, blunt, annulate, from posteriolateral margin, and two shorter,

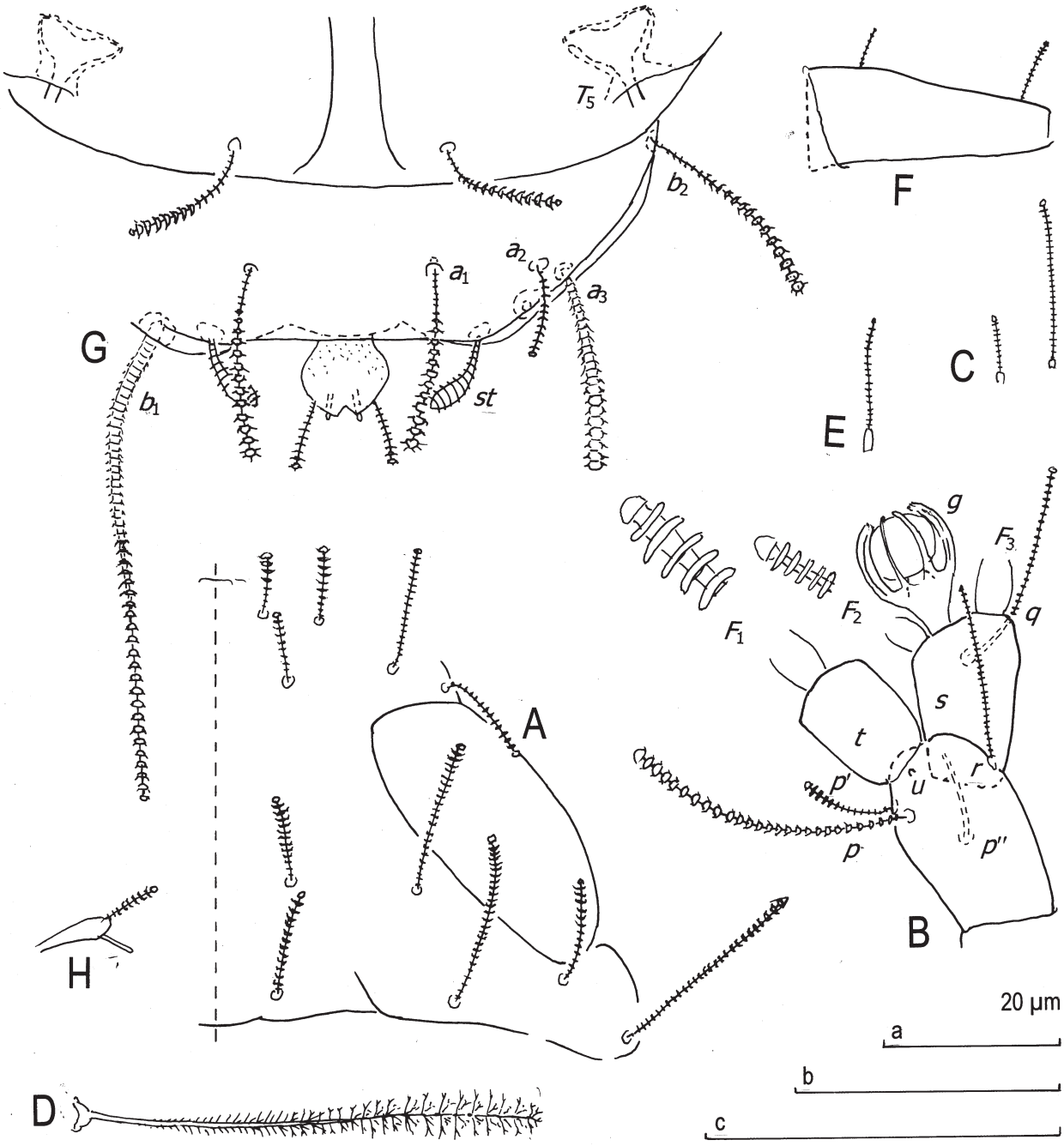

FIGURE 17 *Decapauropus duplus* sp. nov., ad. 9(□): A, head, median and right part; B, right antenna, tergal view; C, submedian and sublateral setae of collum segment; D, T_3; E, seta on trochanter of leg 9; F, tarsus of leg 9; G, pygidium and posterior part of tergite VI, tergal view; H, anal plate, lateral view. Scale a: Figure D; b: Figures C, E, F: c: Figures A, B, G, H.

cylindrical, glabrous ones pointing downward–backward from distal part of sternal side; longer appendages as long as plate, shorter ones 0.4 of the length of plate.

ETYMOLOGY

From the Latin duplus = twofold, double (referring to the cleft posterior part of the anal plate).

Decapauropus finitimus sp. nov.

urn:lsid:zoobank.org:act:729E780C-C470-47B8-B2A6-F80230DB8C20

Figure 18A–G

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** subad. 8(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 18 July 1980 (WAM T125517).

DIAGNOSIS

D. finitimus sp. nov. seems to be closest to *D. bilinguis* Scheller from Sri Lanka (Scheller 1970) because of great similarities in the antennae, pygidial setae and anal plate. They can be distinguished by the length of the seta *r* on the 4th antennal segment, about as long as *p'* in *D. finitimus*, about 0.5 of that length in *D. bilinguis*, by the shape of the bothriotricha T_3, with apical end-swelling, no end-swelling, by the shape of the pubescence on the bothriotricha T_5, hairs simple, not branched, and by the shape of the tarsi of the last pair of legs, 2.5 times as long as the greatest diameter, not 3.4.

DESCRIPTION

Subadult male

Length: 0.35 mm.

Head (Figure 18A): tergal setae of short-medium length, subcylindrical, annulate. Relative lengths of setae, 1st row: a_1 = 10, a_2 = 9; 2nd row: a_1 = 14, a_2 = 18, a_3 = 8; 3rd row: a_1 = 10, a_2 = 14; 4th row: a_1 = 12, a_2 = 16, a_3 = 14 a_4 = ?; lateral group setae not studied. Ratio a_1/a_1-a_1 in 1st row 1.1, 2nd row 1.0, 3rd row 0.8, 4th row 1.5. Temporal organs short, 0.9 of their shortest distant apart; no posterior aperture, no pistil. Head cuticle glabrous.

Antennae (Figure 18B): segment 4 with four setae, *p* distinctly widening distally, the others cylindrical, *p, p′,* and *p″* annulate, *r* striate; their relative lengths: p = 10, $p' = p'' = r$ = 4. Tergal seta *p* 1.9 times as long as tergal branch *t*. The latter branch widest in distal half, 2.2 times as long as its greatest diameter and 1.1 times as long as sternal branch *s*, that branch 1.3 times as long as its greatest diameter; anterodistal corner of *s* truncate. Seta *q* as *p* of 4th segment but thinner, 1.2 times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 10; F_2 = 39, bs_2 = 6; F_3≈78, bs_3 = 8. F_1 4.6 times as long as *t*, F_2 and F_3 2.0 and ≈4 times as long as *s* respectively. Distal calyces flattened, distal part of flagella axes somewhat widened in F_1 and F_3; not at all in F_2. Globulus *g* almost spherical, 1.1 times as long as wide, ≈11 bracts, capsule somewhat flattened ; width of *g* 1.1 times as long as greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 18C, G): setae of collum segment (Figure 18C) simple, subcylindrical, blunt, annulate; sublateral setae 2.9 times as long as submedian ones; sternite process very small; appendages barrel-shaped with hemispherical caps; process and appendages glabrous.

Setae on tergites cylindrical, densely annulate, 4+4 setae on I, 6+6 on II-IV, 4+4 on V. Submedian posterior setae on V (Figure 18G) 0.4(–0.5) of interdistance.

Bothriotricha (Figure 18D): relative lengths: $T_1 = T_2$ = 100, T_3 = 104, T_5 = 138; all with thin axes, pubescence hairs simple on T_5 and on proximal parts of T_1, T_2 and T_3, on the former strong, on the three latter thin and short, hairs on outer 2/3 of T_1 and T_2 branched and arranged in whorls, longest on T_1 and T_2; T_3 (Figure 18D) with distal swelling with simple pubescence hairs, swelling <0.1 of the length of bothriotrix.

Legs (Figures 18E, F): setae on coxa and trochanter (Figure 18E) of leg 9 simple cylindrical annulate. Tarsus of leg 9 (Figure 18F) somewhat tapering, 2.5 times as long as its greatest diameter. Setae of about the same length, subcylindrical, annulate, proximal one 0.3 of the length of tarsus. Cuticle of tarsus glabrous.

Pygidium (Figure 18G).

Tergum: posterior margin with shallow indentation between *st*. Relative lengths of setae: $a_1 = a_2$ = 10, a_3 = 11, *st* = 6; *a*-setae cylindrical, blunt, striate, *st* clavate, indistinctly striate. Distance a_1-a_1 as long as a_1; distance a_1-a_2 1.4 times as long as distance a_2-a_3; distance *st*-*st* 2.3 times as long as *st* and 1.4 times as long as distance a_1-a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with very shallow indentation. Relative lengths of setae (pygidial a_1 = 10): b_1 = 31, b_2 = 11; setae cylindrical, blunt, annulate, b_2 somewhat curved inward; b_1 1.3 times as long as interdistance; b_2 as long as distance b_1–b_2.

Anal plate (Figure 18G) broadest anteriorly, linguiform, 1.9 times as long as broad, glabrous, lateral margins almost straight, posterior margin rounded, distal part of plate turned downward and from its tergal side a posteriorly directed V-shaped appendage with short, thick, blunt, branches with short pubesce4nce, length of appendage 0.5 of the length of plate.

ETYMOLOGY

From the Latin finitimus = adjacent to (referring to supposed close relation to *D. bilinguis*).

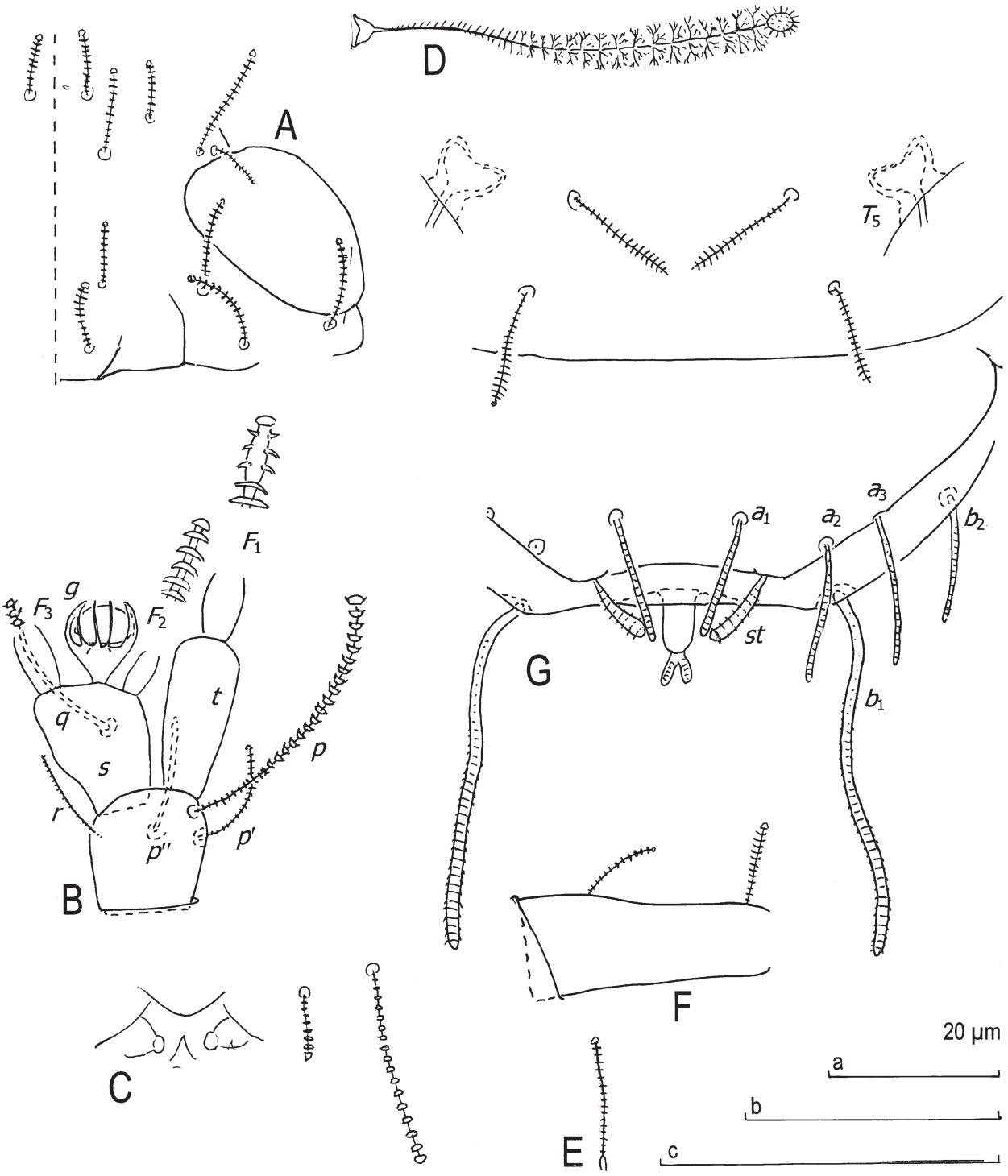

FIGURE 18 *Decapauropus finitimus* sp. nov., holotype, subad. 8(□): A, head, median and right part, tergal view; B, left antenna, tergal view; C, collum segment, median and left part, sternal view; D, T_3; E, seta on trochanter of leg 8; F, tarsus of leg 8; G, pygidium and posterior part of tergite V, tergal view. Scale a: Figure D; b: Figure A: c: Figures B, C, E–G.

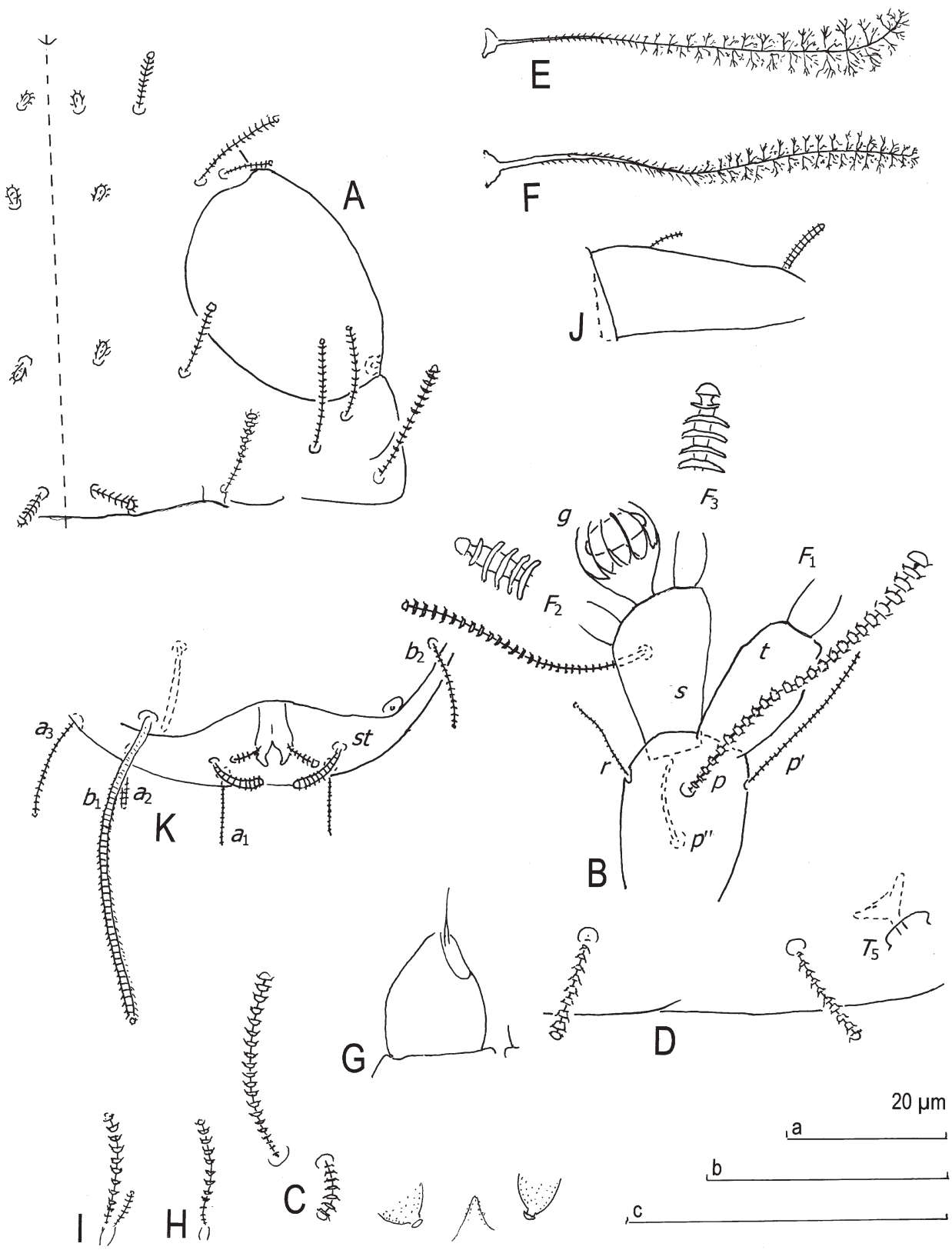

FIGURE 19 *Decapauropus forcipiformis* sp. nov., A–F, H–K holotype ad. 9(□), G paratype ad.9(□): A, head, median and right part, tergal view; B, right antenna, tergal view; C, collum segment, median and left part, sternal view; D, posterior part of tergite VI; E, T_1; F, T_3; G, genital papillae, right side, anterior view; H, seta on coxa of leg 9; I, seta on trochanter of leg 9; J, tarsus of leg 9; K, pygidium and posterior part of tergite VI, sternal view. Scale a: Figures E–G; b: Figures A, C, H–K; c: Figures B, D.

Decapauropus forcipiformis sp. nov.

urn:lsid:zoobank.org:act:80C4913F-5D0A-4043-B215-31865D8C1B78

Figure 19A–K

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 28 July 1981 (WAM T125518).

Paratypes

Australia: *Western Australia*: 1 ad. 9(□), same data as holotype; 4 ad. 9(□), same data except 25 May 1981 (WAM T125519).

Non-types

Australia: *Western Australia*: 3 ad. 9(□), 1 juv. 3, same data except in soil, 25 July 1980; 1 ad. 9(□), same data except 11 August 1980; 1 subad.8(□), 1 juv. 6, 1 juv. 3, same data except 23 October 1980; 4 ad. 9(1□, 3□), same data except 21 April 1981; 5 ad. 9(2□, 3□), same data except 27 May 1981; 2 ad. 9(□), same data except 22 June 1981; 1 ad. 9(□), 1 subad. 8(□), same data except 28 July 1981; 2 ad. 9(□), same data except 25 August 1981.

DIAGNOSIS

The new species may be close to *D. ungulatus* Scheller from Tasmania (Scheller 2009b). They are very alike as to the general shape of the antennae, bothriotricha and the anal plate but are easily distinguished by the shape of the setae on the tergal side of the head, a_1 of the rows 1–3 rudimentary in *D. forcipiformis*, of medium length and annulate in *D. ungulatus*, and by the shape of the capsule of the antennal globulus *g*, flattened, not spherical, and the *st*, cylindrical, not clavate. In some respects *D. forcipiformis* is close also to *D. gamba* sp. nov. described below but in the latter species the setae a_1 of the first three rows of the head are not rudimentary and the anal plate is hoof-like, not claw-like.

DESCRIPTION

Adult female holotype (and paratypes)

Length: (0.47–)0.60 mm.

Head (Figure 19A): tergal setae of short–medium length, subcylindrical annulate, a_1 of rows 1–3 rudimentary. Relative lengths of setae (a_2 of 1st row = 10), 1st row: a_1 = (2–)3, a_2 = 10; 2nd row: a_1 = (2–)3, a_2 = 10(–11), a_3 = 8; 3rd row: a_1 = (2–)3, a_2 = 12(–13); 4th row: a_1 = (7–)8(–10), a_2 = 14(–20), a_3 = (15–)18, a_4 = (20–)22(–25); lateral group setae (incompletely studied): l_1 = 16(–17), l_2 = (13), l_3 = (15). Ratio a_1/a_1–a_1 in 1st row (0.2–)0.3, 2nd row (0.1–)0.2, 3rd row 0.2, 4th row (0.8–)0.9(–1.0). Temporal organs short, length 0.9(–1.0) of their shortest interdistance; small posterior aperture anterior of l_1 and l_2. Head cuticle glabrous.

Antennae (Figure 19B): segment 4 with 4 setae, *p* large, widest distally, the others cylindrical, densely annulate; their relative lengths: p = 10, p' = 3(–4), p'' = 2(–3), r = 4(6). Tergal seta *p* (2.0–)2.1(–2.3) times as long as tergal branch *t*. The latter fusiform, (1.6–)1.8 times as long as its greatest diameter and 0.9(–1.0) of the length of sternal branch *s*, that branch (1.5–)1.6(–1.7) times as long as its greatest diameter; anterodistal corner of *s* truncate. Seta *q* blunt, densely annulate, (1.4–)1.6 times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = (6–)7(–8); F_2 = (34–)39, bs_2 = 5(–6); F_3 = (76–87), bs_3 = 7(–8). F_1 (5.1–)5.3(–5.7) times as long as *t*, F_2 and F_3 (1.8–)1.9(–2.0) and ?(3.7–4.2) times as long as *s* respectively. Distal calyces helmet-shaped, distal part of flagella axes fusiformly widened below calyces. Globulus *g* almost spherical, 1.1(–1.2) times as long as wide, 11(–12) bracts, capsule flattened; width of *g* 1.0(–1.1) times as long as the greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 19C-F): setae of collum segment (Figure 19C) simple subcylindrical blunt annulate; sublateral ones 3.1(–3.3) times as long as submedian ones; sternite process small, pointed anteriorly; appendages rounded with small caps; process and appendages faintly granular.

Setae on tergites as posteriomedian setae of head, 4+4 setae on tergite I, 6+6 on II–IV, 4+2 on VI. Submedian posterior setae on VI (Figure 19D) (0.4–)0.5 of interdistance.

Bothriotricha (Figures 19E, F): relative lengths: T_1 = 100 (Figure 19E), T_2 = (87–)94(–102), T_3 = (119–)136 (Figure 19F), T_4 = (114–)115(–118), T_5 = (116–)123; all with simple thin axes, pubescence short, with simple oblique hairs proximally and longer branched hairs arranged in whorls in the middle and outer parts, longest on T_1 and T_2.

Genital papillae (paratype, figure 19G): short, 1.2 times as long as wide, seta short thin, 0.5 of the length of papilla.

Legs (Figures 19H–J): setae on coxa (Figure 19H) and trochanter (Figure 19 I) cylindrical, blunt, annulate, the former simple, the latter furcate with short secondary branch. Tarsus of leg 9 (Figure 19J) distinctly tapering, 2.4(–3.0) times as long as its greatest diameter. Setae cylindrical, blunt, striate, proximal one 0.2(–0.3) of the length of tarsus and 0.6(–0.8) of the length of distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 19K).

Tergum: posterior margin evenly rounded. Relative lengths of setae: a_1 = 10, a_2 = (7–)8(–9), a_3 = (11–)15, *st* = (7–)8(–10); *a*-setae cylindrical, striate, blunt, a_2 and a_3 somewhat curved inwards, *st* clavate striate, curved inward and converging. Distance a_1–a_1 (1.2–)1.5(–1.6) times as long as a_1; distance a_1–a_2 (1.4–)1.6(–1.8) times as long as distance a_2–a_3; distance *st*–*st* (2.0–)2.2 times as long as *st* and (1.1–)1.2(–1.4) times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with rounded

indentation. Relative lengths of setae (pygidial a_1 = 10): b_1 = (31–)42(–45), b_2 = (11–)13(–16); setae cylindrical, blunt, annulate, b_2 somewhat curved inward; b_1 (1.1–)1.4 times as long as interdistance; b_2 1.0(–1.1) times as long as distance b_1–b_2.

Anal plate broadest in posterior half, 1.3(–1.8) times as long as broad with concave lateral margins and two claw-like posterior branches each with a somewhat clavate, annulate, strongly diverging appendage protruding posteriorly from sternal side; length of clavate appendages 0.6(–0.7) of the length of plate.

ETYMOLOGY

From the Latin forcipiformis = in the form of a tong (referring to the shape of the anal plate).

Decapauropus fruticulus sp. nov.

urn:lsid:zoobank.org:act:9C47AC1F-5DC1-4F12-B314-CAE264390ACB

Figure 20A–I

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** subad. 8(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 18 July 1980 (WAM T125520).

Paratype

Australia: ***Western Australia*:** 1 subad. 8(□), same data as holotype except 21 September 1980 (WAM T125521).

DIAGNOSIS

There are several species from various continents with linguiform anal plates with two short posterior appendages. Among them *Decapauropus fruticulus* may be closest to the Neotropical *D. disappendicalis* Scheller (1997) but they can easily be distinguished by the shape of the collum segment, with appendages and process in *D. fruticulus,* neither process nor appendages in *D. disappendicalis*, and by the distal part of the bothriotricha T_3, distal swelling below the end, not apical, and by good pygidial characters, the posterior margin of the tergum with large triangular lobe posterior of setae a_1, not straight, and the posterior process of the anal plate is blunt-ended, not pointed.

DESCRIPTION

Subadult male holotype (and subadult paratype)

Length: (0.35–)0.39 mm.

Head (Figure 20A): tergal setae of short–medium length, cylindrical, blunt, annulate. Relative lengths of setae (holotype only), 1st row: $a_1 = a_2$ = 10; 2nd row: a_1 = 13, a_2 = 20, a_3 = 10; 3rd row: a_1 = 13, a_2 = 18; 4th row: a_1 = 17, a_2 = 19, $a_3 = a_4$ = 20; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 1.0, 2nd and 3rd rows 0.9, 4th row 1.5. Temporal organs ovoid in tergal view, length 0.7 of shortest interdistance. Head with 3-lobed posterior margin; cuticle glabrous.

Antennae (Figure 20B): segment 4 with 5 cylindrical, blunt, densely annulate setae, p''' very short, their relative lengths: p = 10, $p' = r$ = 4, p'' = 2. Tergal seta p twice longer than tergal branch *t*. The latter fusiform, (1.7–)1.8 times as long as its greatest diameter and 0.9 of the length of sternal branch *s*, that branch 1.5 times as long as its greatest diameter; anterodistal corner of *s* truncate. Seta *q* cylindrical blunt annulate, about as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 9; F_2 = 36(–38), bs_2 = 6; F_3 = 84, bs_3 = 9. F_1 4.5 times as long as *t,* F_2 and F_3 1.5 and 3.5 times as long as *s* respectively. Distal calyces small and somewhat flattened, distal part of flagella axes strongly and fusiformly enlarged below calyces. Globulus *g* large, almost spherical, ≈15 bracts, capsule with flattened bottom; width of *g* (1.4–)1.5 times as long as the greatest diameter of *t*. Antennae glabrous.

Trunk (Figure 20C, D): setae of collum segment (Figure 20C) simple, subcylindrical, blunt, annulate; sublateral setae 2.5 times as long as submedian setae. Sternite process small, strongly narrowed anteriorly; appendages small not available for study.

Setae on anterior tergites as posteriomedian setae of head, 4+4 setae on tergite I, more posterior setae only partly available. Posterior setae on V (Figure 20D).

Bothriotricha (Figures 20E, F): relative lengths: T_1 = 100, T_2 = ?, T_3 = 107 (Figure 20E), T_5 = 116 (Figure 20F); all with simple, thin, axes, pubescence short with simple, oblique hairs on proximal 1/3 of T_1–T_3 and proximal 2/3 of T_5, with ramose, longer hairs arranged in whorls in other parts; T_3 with subdistal swelling with ramose hairs, swelling 0.1 of the length of bothriotrix.

Legs (Figures 20G, H): setae on coxa (Figure 20G) and trochanter furcate, branches cylindrical, blunt, annulate, secondary branch 0.6 of the length of primary one. Tarsus of leg 8 (Figure 20H) tapering, (2.5–)2.8 times as long as its greatest diameter. Setae subsimilar in length, cylindrical, annulate, proximal seta 0.3 of the length of tarsus. Cuticle of tarsus glabrous.

Pygidium (Figure 20 I).

Tergum: posterior margin with large, triangular lobe posterior of a_1 and smaller but distinct lobes outside *st*. Relative lengths of setae: a_1 = 10, a_2 = 9, a_3 = 13, *st* = 12; setae curved inward, *a*-setae cylindrical, blunt, faintly striate, *st* clavate glabrous, converging. Distance a_1–a_1 as long as a_1; distance a_1–a_2 twice longer than distance a_2–a_3; distance *st*–*st* 1.7 times as long as *st* and 1.2 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with rounded lobes just inside b_1. Relative lengths of setae (pygidial a_1 = 10): b_1 = 29(–30), b_2 = 12; setae cylindrical, blunt, annulate–striate, b_2 curved inward; b_1 1.2(–1.3) times as long as interdistance; b_2 0.9 of the distance b_1–b_2.

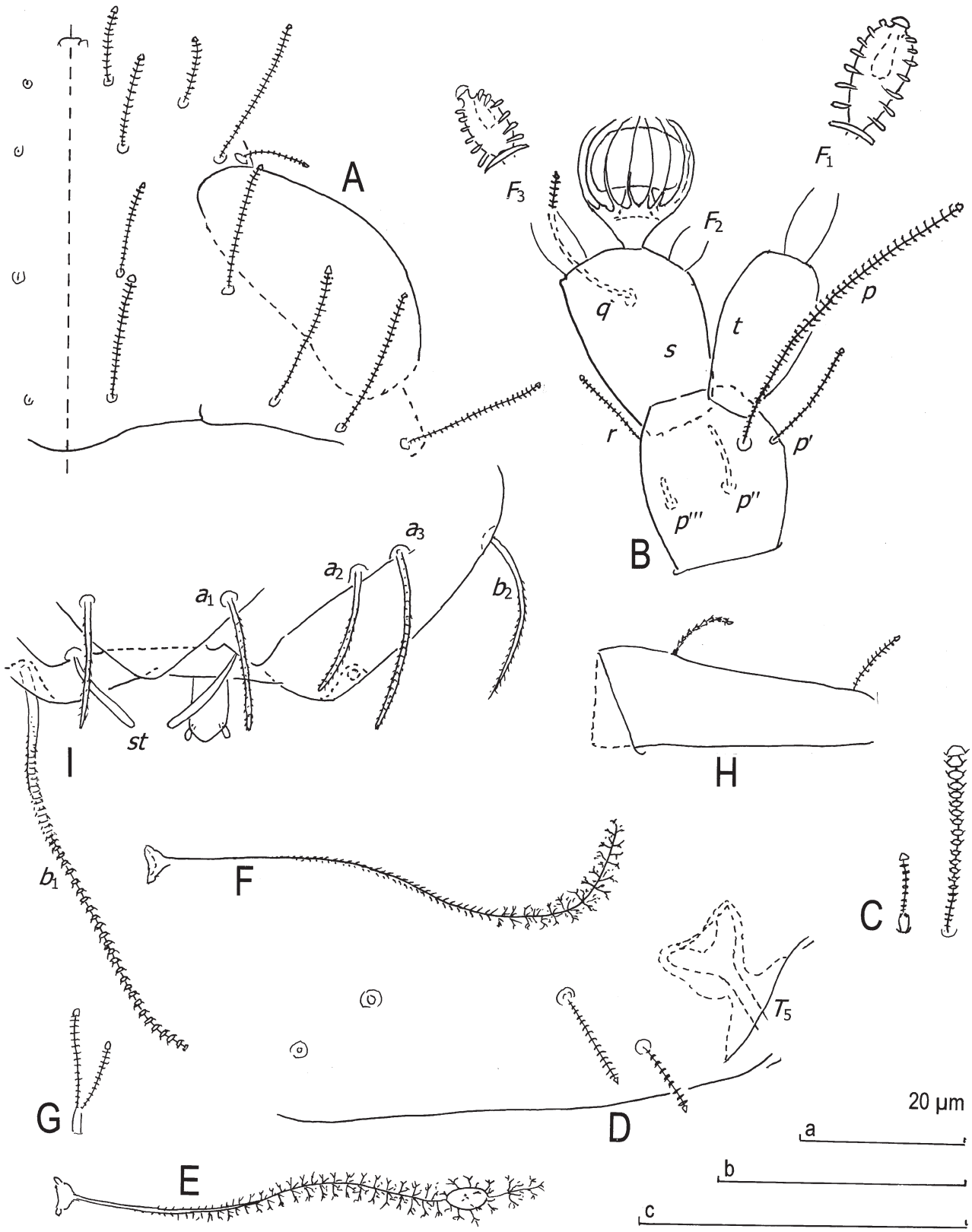

FIGURE 20 *Decapauropus fruticulus* sp. nov., holotype subad. 8(□): A, head, median and right part, tergal view; B, left antenna, tergal view; C, submedian and sublateral setae of collum segment (appendages and process hidden); D, posterior part of tergite V; E, T_3; F, T_1; G, seta on coxa of leg 8; H, tarsus of leg 8; I, pygidium, posteriomedian and right part, tergal view. Scale a: Figures E, F; b: Figures A, C, G, H; c: Figures B, D, I.

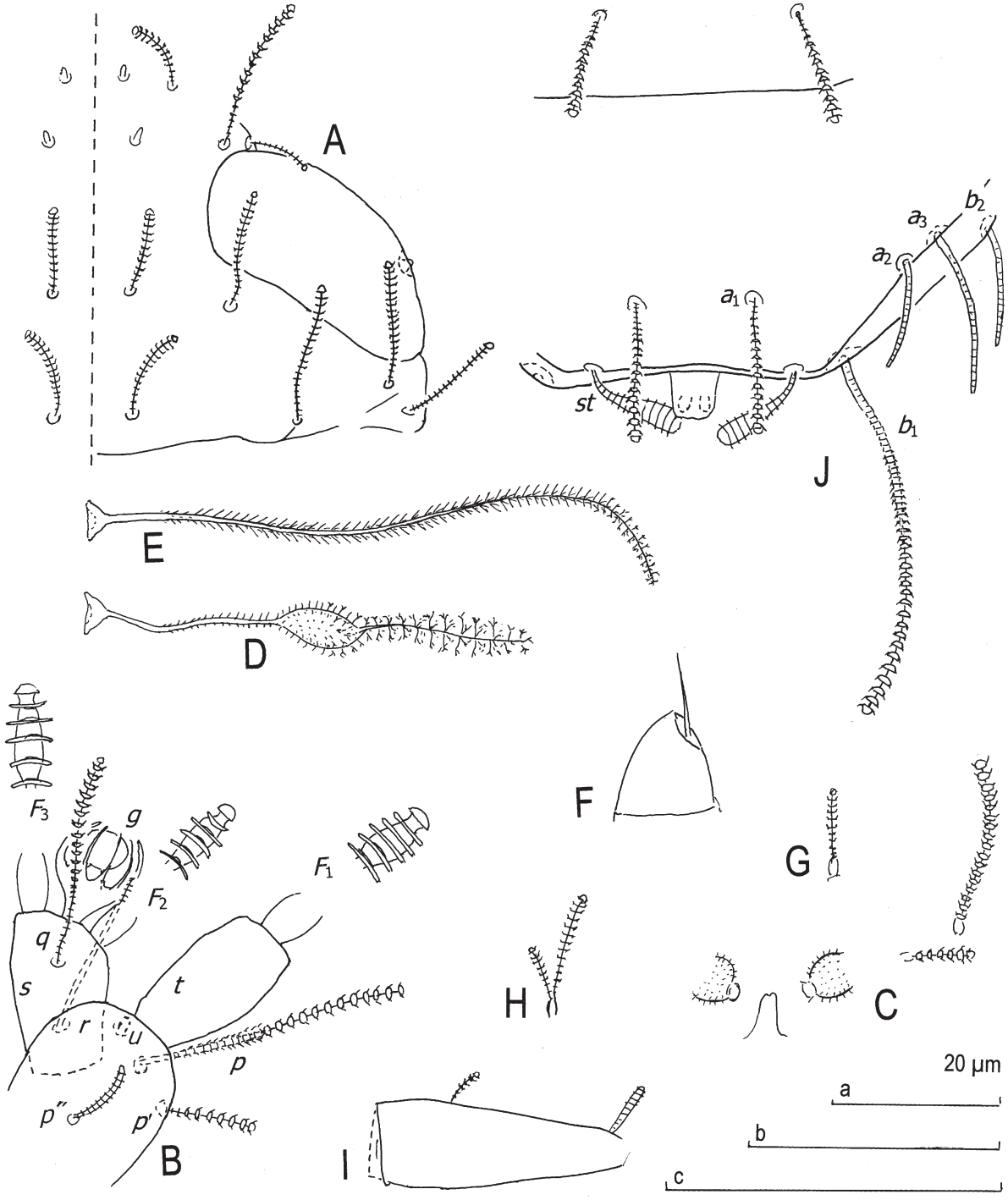

FIGURE 21 *Decapauropus fustisetosus* sp. nov., holotype ad. 9(□): A, head, median and right part, tergal view; B, right antenna, sternal view; C, collum segment, median and left part, sternal view; D, T_3; E, T_5; F, genital papillae, left side, anterior view; G, seta on coxa of leg 9; H, seta on trochanter of leg 9; I, tarsus of leg 9; J, pygidium and posteriomedian part of tergite VI, tergal view. Scale a: Figures D–F; b: Figures A, C, G–I, ; c: Figures B, J.

Anal plate linguiform, 1.6(–1.9) times as long as broad with straight, lateral margins and triangular in shape posteriorly; two short, somewhat clavate, glabrous, diverging appendages protruding backward-downward from near rounded posteriolateral corners; length of appendages about ¼ of the length of plate.

ETYMOLOGY

From the Latin frutex = bush (referring to the many ramose hairs covering all the bothriotricha).

***Decapauropus fustisetosus* sp. nov.**

urn:lsid:zoobank.org:act:630D879C-7945-4062-8AB1-01185C6B05FF

Figure 21A–J

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 18 March 1981 (WAM T125522).

DIAGNOSIS

Decapauropus fustisetosus is unique in the genus with the combination of two pairs of shortened a_1-setae on the tergal side of the head, club-shaped proximal half of the bothriotricha T_3, very short genital papillae and claviform pygidial setae *st*. In some characters it may be connections with a few of the other species from Dwellingup described in this paper such as *D. camurus* (pygidial characters, genital papillae) and *D. vegrandis* (reductions in the length of some setae on the head) but in most respects they are not alike.

DESCRIPTIONS

Adult male holotype

Length: 0.49 mm.

Head (Figure 21A): setae blunt, a_1 of two first rows rudimentary, cylindrical, glabrous, other tergal setae of medium length, subcylindrical, annulate. Relative lengths of setae, 1st row: $a_1 = 1$, $a_2 = 6$; 2nd row: $a_1 = 1$, $a_2 = 12$, $a_3 = 5$; 3rd row: $a_1 = 6$, $a_2 = 9$; 4th row: $a_1 = 8$, $a_2 = 11$, $a_3 = 10$, $a_4 = 9$; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 0.2, 2nd row 0.1, 3rd row 1.1, 4th row 1.3. Temporal organs ovoid in tergal view, 1.2 times as long as shortest interdistance; small pistil in posterior part near the middle. Head cuticle glabrous.

Antennae (Figure 21B): segment 4 with 5 setae, *p*, *p′* and *p″* subcylindrical, annulate, *r* cylindrical, blunt, *u* rudimentary; their relative lengths: $p = 10$, $p' = r = 4$, $p'' = 3$. Tergal seta *p* 1.8 times as long as tergal branch *t*. The latter branch fusiform, 1.8 times as long as its greatest diameter and 0.9 of the length of sternal branch *s*, that branch 1.8 times as long as its greatest diameter; anterodistal corner of *s* truncate. Seta *q* as *p* of 4th segment but more clavate, 1.3 times as long as the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, $bs_1 = 6$; $F_2 = 37$, $bs_2 = 4$; $F_3 = 80$, $bs_3 = 8$. F_1 5.1 times as long as *t*, F_2 and F_3 1.7 and 3.7 times as long as *s* respectively. Distal calyces helmet-shaped; distal part of flagella axes fusiformly widened below calyces. Globulus *g* almost spherical, 1.3 times as long as wide, stalk narrow, ≈8 bracts, capsule subspherical; width of *g* as long as the greatest diameter of *t*. Antennae glabrous.

Trunk (Figure 21C, J): setae of collum segment (Figure 21C) simple, cylindrical, blunt, annulate. Sublateral setae 2.3 times as long as submedian setae; sternite process narrow anteriorly, with distal incision; appendages small, hemispherical, caps with collar. Process glabrous, appendages with erect pubescence.

Setae on tergites as setae on head; 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Submedian posterior setae on VI (Figure 21J) 0.6 of interdistance and about as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures 21D, E): relative lengths: $T_1 = 100$, $T_2 = 102$, $T_3 = 104$, $T_4 = 125$, $T_5 = 147$. Axes simple, thickened in T_3 (Figure 21D) only, there with large median swelling. Pubescence simple on proximal parts of T_1–T_4 and on main part of T_5 (Figure 21E), short erect on the former, longer and mainly oblique on T_5; distal parts of T_1–T_4 with ramose hairs in whorls, ramose hairs also on outer half of median swelling of T_3 and distal part of T_5.

Genital papillae (Figure 21F): short, as wide as long, conical, glabrous, seta 0.8 of the length of papilla.

Legs (Figures 21G–I): setae on coxa (Figure 21G) and trochanter (Figure 21H) of leg 9 cylindrical, blunt, annulate, the former simple, the latter furcate with shortened secondary branch. Tarsus of leg 9 (Figure 21 I) distinctly tapering, 2.8 times as long as greatest diameter. Setae cylindrical, blunt; proximal one annulate, 0.1 of the length of tarsus and 0.7 of the length of striate distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure21J).

Tergum: posterior margin between *st* somewhat indented. Relative lengths of setae: $a_1 = 10$, $a_2 = st = 8$, $a_3 = 13$. The *a*-setae cylindrical, a_1 straight annulate, a_2 and a_3 faintly striate, curved inward, the latter also diverging, *st* clavate, striate, converging, curved inward. Distance a_1–a_1 0.9 of the length of a_1, distance a_1–a_2 4 times longer than distance a_2–a_3; distance *st*–*st* 1.7 times as long as *st* and 1.7 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 somewhat indented. Relative lengths of setae (pygidial $a_1 = 10$): $b_1 = 27$, $b_2 = 9$. Setae cylindrical blunt, b_1 annulate–striate, 1.2 times as long as interdistance, b_2 0.7 of distance b_1–b_2.

Anal plate (Figure 21J) glabrous, broadest anteriorly,

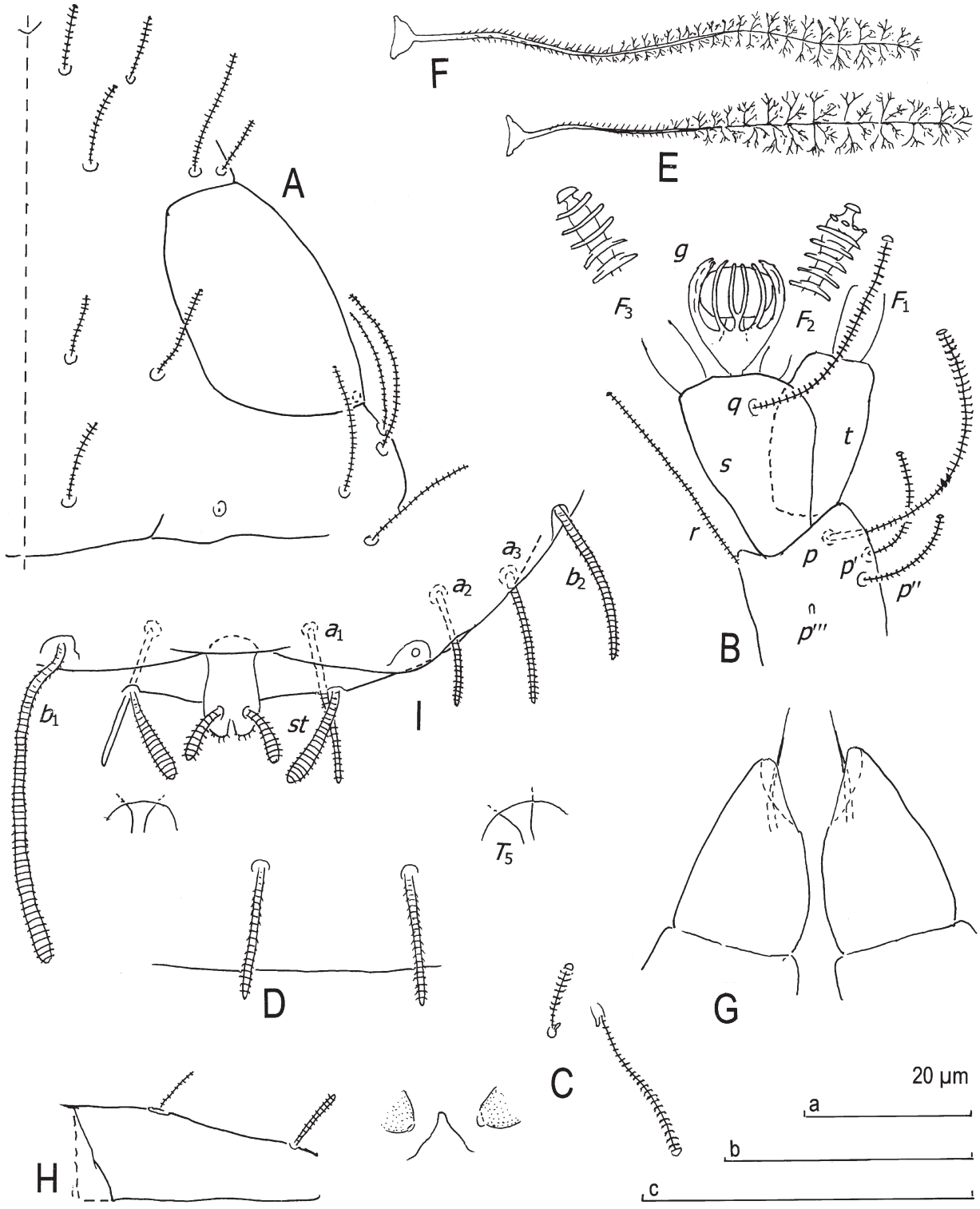

FIGURE 22 *Decapauropus gamba* sp. nov., ad. 9(□): A, head, median and right part, tergal view; B, right antenna, sternal view; C, collum segment, median and left part, sternal view; D, tergite VI, posteriomedian part; E, T_3; F, T_5; G, genital papillae, right side, anterior view; H, tarsus of leg 9; I, pygidium, sternal view; Scale a: Figures E, F; b: Figures A, C, G, H; c: Figures B, D, I.

subsquare, posteriolateral corners rounded, two short clavate diverging appendages protruding downward from sternal side; their length ¼ of the length of plate.

ETYMOLOGY

From the Latin fustis = club, bludgeon, and seta = bristle (referring to the shape of the bothriotricha T_3).

Decapauropus gamba sp. nov.

urn:lsid:zoobank.org:act:19B536D1-81A2-4728-8AFB-1FF22436AC31

Figure 22A–I

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 15 April 1981 (WAM T125523).

Paratypes

Australia: ***Western Australia*:** 2 ad. 9(□), same data as holotype except 18 July 1980 (WAM T125524); 1 subad. 8(□), same data except in litter, 15 April 1981 (WAM T125525).

DIAGNOSIS

In many respects, especially as to the collum segment, the anal plate and the antennae, *D. gamba* sp. nov. is close to *D. ungulatus* Scheller from Tasmania (Scheller 2009b). Good distinguishing differences are in the seta on trochanter of leg 9, simple in *D. gamba,* furcate in *D. ungulatus*, the shape of the *st,* distinctly clavate, not thin cylindrical, the shape of the anal plate, 1.7 times as long as broad, not 2.5, and in the appendages of the anal plate, protruding from the inner part of the sternal side and 0.6 of the length of the plate in *D. gamba,* protruding from near the lateral margins, almost straight and 0.3 of the length of the plate in *D. ungulatus.*

DESCRIPTION

Adult male holotype (and paratype)

Length: 0.52 mm.

Head (Figure 22A): tergal setae cylindrical, blunt, striate–annulate. Relative lengths of setae (holotype only), 1st row: a_1 = 10, a_2 = 11; 2nd row: a_1 = 14, a_2 = 20, a_3 = 10; 3rd row: a_1 = 11, a_2 = 16; 4th row: a_1 = 13, a_2 = ?, a_3 = a_4 = 20; lateral group setae: l_1 = 40, l_2 = 20, l_3 = ?. Ratio a_1/a_1–a_1 in 1st and 3rd rows 0.8, 2nd row 0.7, 4th row 0.9. Temporal organs broad in tergal view, length 0.9 of shortest interdistance; small aperture posteriorly at a level of seta l_2. Head cuticle and temporal organs glabrous.

Antennae (Figure 22B): segment 4 with 5 cylindrical, blunt setae, all but p''' annulate, the latter rudimentary; relative lengths of setae: p = 10, p' = 4, p'' = 3(–4), r = (7–)8. Tergal seta p (2.0–)2.1 times as long as the length of tergal branch t. The latter somewhat fusiform, 1.5(–1.6) times as long as greatest diameter and 0.8 of the length of sternal branch s, that branch (1.5–)1.7 times as long as its greatest diameter; anterodistal corner of s truncate. Seta q subcylindrical, annulate, blunt, (1.3–)1.4 times as long as s. Relative lengths of flagella (base segments included) and base segments: F_1 = 100, bs_1 = 10; F_2 = 37(–39), bs_2 = 4; F_3 = 91(–93), bs_3 = 10. F_1 5.1 times as long as t, F_2 and F_3 1.5 and 3.5(–3.6) times as long as s respectively. Distal calyces flattened. Distal part of flagella axes thickened, those of F_2 in the shape of an inverted cone with the first lamella split up into a whorl of fragments. Globulus g proportionally large, 1.2 times as long as wide, ≈15 bracts, capsule somewhat flattened, width of g about as long as greatest diameter of t. Antennae glabrous.

Trunk (Figures 22C, D): setae of collum segment (Figure 22C) furcate, main branch cylindrical, blunt, annulate; secondary branch rudimentary. Sublateral setae 2.3 times as long as submedian setae; sternite process triangular, narrow anteriorly; appendages roundly conical with small caps. Process and appendages with minute pubescence.

Setae on tergites as setae on head; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI cylindrical striate (Figure 22D), 0.9 of interdistance and about as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures 22E, F): relative lengths: T_1 = 100, T_2 = 92(–101), T_3 = 93(–105) (Figure 22E), T_4 = 108, T_5 = 117(–119) (Figure 22F). Axes simple, straight, somewhat thickened in T_5 only. Pubescence on proximal 1/3 simple, oblique–erect, increasing in length outward, there also ramose and arranged in whorls.

Genital papillae (Figure 22G): conical, glabrous, 1.5 times as long as greatest diameter, seta 0.6 of the length of papilla, base segment well developed.

Legs (Figure 22H): setae on coxa and trochanter of leg 9 not available for study in holotype. In the subad.8 paratype both these setae on the last pair of legs with rudiments of secondary branches. Tarsus of leg 9 (Figure 22H) distinctly tapering, (2.7–)2.8 times as long as greatest diameter. Setae cylindrical, blunt, striate; proximal seta 0.2 of the length of tarsus and 0.8 of the length of distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 22I).

Tergum: posterior margin between *st* with very low flat lobe. Relative lengths of setae: a_1 = 10, a_2 = (7–)8, a_3 = (8–)9 and 10, *st* = 6. These setae blunt, striate, curved inward, *a*-setae cylindrical, *st* clavate converging. Distance a_1–a_1 0.8 of the length of a_1; distance a_1–a_2 1.5 times as long as distance a_2–a_3; distance *st*–*st* twice longer than *st* and 1.4 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with broad indentation. Relative lengths of setae (pygidial a_1 = 10): b_1 = 21, b_2 = 12. Setae cylindrical, striate, blunt, b_1 as

long as interdistance, b_2 0.7 of distance b_1–b_2.

Anal plate (Figure 22 I) 1.7 times as long as broad with concave lateral margins in anterior half, broadest in posterior half, rounded posteriorly with small median V-shaped incision; two clavate, striate, diverging appendages protruding posteriorly from sternal side; their length 0.4 of the length of plate; posterior margin with short pubescence.

ETYMOLOGY

From the Greek gamba = hoof (referring to the hoof-like shape of the anal plate).

Decapauropus haplotes sp. nov.

urn:lsid:zoobank.org:act:A9477D60-EDFE-4ACB-A7FF-3693A35073EE

Figure 23A–H

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in litter, 15 April 1981 (WAM T125526).

Paratypes

Australia: ***Western Australia*:** 7 ad. 9(6□, 1 sex ?), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 28 July 1981 (WAM T125527).

Non-types

Australia: ***Western Australia*:** 1 ad. 9(□), Murray River site, in litter, 25 May 1981; 1 juv. 6, same data except 31 August 1981; 1 ad. 9(□), 4 juv. 5, 4 juv. 3, same data except in soil, 25 July 1980; 2 ad. 9(□), 5 juv. 3, Yarragil Brook site, 18 July 1980; 2 ad. 9(□), same data except 20 July 1980; 1 ad. 9(□), Murray River site, 18 August 1980; 1 juv. 5, same data except 31 August 1981; 1 juv. 6, Yarragil Brook site, 14 September 1980; 1 ad. 9(□), 3 juv. 6, 1 juv. 5, Murray River site, 20 September 1980; 3 subad. 8(□), same data except 15 October 1980; 1 ad. 9(□), 1 subad.8(□), 3 juv. 6, 3 juv. 5, same data except 16 October 1980; 1 subad. 8(□), 1 juv. 5, same data except 18 October 1980; 1 ad. 9(□), 2 subad.8(□), 2 juv. 5, Yarragil Brook site, 23 October 1980; 1 subad. 8(□), 3 juv. 6, 1 juv. 5, 3 juv. 3, Murray River site, 24 October 1981; 2 subad. 8 (□), same data except 19 January 1981; 3 ad. 9(□), 2 juv. 6, Yarragil Brook site, 15 April 1981; 1 ad. 9(□), Murray River site, 19 May 1981; 1 ad. 9(□), same data except 21 May 1981; 4 ad. 9(□), 1 juv. 3, same data except 25 May 1981; 5 ad. 9(2□, 3□), same data except 27 May 1981; 3 juv. 6, 1 ad. 9(□), 2 subad. 8(□), 2 juv. 6, same data except 21 August 1981; 2 juv. 6, Yarragil Brook site, 31 August 1981; 2 juv. 5, 2 juv. 3, same data except 21 September 1981; 2 subad. 8(□), 2 juv. 5, same data except 22 September 1981; 2 juv. 3, 29 same data except December 1981.

DIAGNOSIS

Decapauropus haplotes shows striking resemblances to *D. acer* Scheller from Amazonas, Brazil, (Scheller 1994b) but differs especially by the aspect of the collum segment, anterior part of process blunt in *D. haplotes,* incised in *D. acer*; the caps of the processes entire, not divided, and by the posterior margin of the pygidial tergum, distinctly indented, not straight, and the posterior appendage of the anal plate, glabrous, not distinctly pubescent.

DESCRIPTION

Adult female holotype (and paratypes)

Length: (0.66–)0.76(–0.94) mm.

Head (Figure 23A): setae of medium length, blunt, annulate: their relative lengths, 1st row: a_1 = 10, a_2 = (8–)10(–11); 2nd row: a_1 = (13–)15(–16), a_2 = (15–)20, a_3 = (5–)9(–10); 3rd row: a_1 = 15(–19), a_2 = (17–)22; 4th row: a_1 = (13–)16(–18), a_2 = (18–)25(–27), a_3 = 11(–15), a_4 = (20–)?(–28); lateral group setae: l_1 = (22–31), $l_1$and l_2 not studied. Ratio a_1/a_1–a_1 in 1st row 0.9(–1.4), 2nd row 0.6(–0.8), 3rd row (1.3–)1.5, 4th row 2.3(–3.0). Temporal organs ovoid in tergal view, as long as shortest interdistance; small but distinct pistil in the middle. Head cuticle glabrous.

Antennae (Figure 23B): segment 4 with 4 cylindrical annulate setae, annuls large on *p* and *p′*, small on *p″*, *r* striate (– densely annulate). Relative lengths of setae: *p* = 10, *p′* = (7–)10, *p″* = (3-)4, *r* = 3. Tergal seta *p* (as long as –)1.4 times as long as tergal branch *t*. The latter branch fusiform, obliquely truncate distally, 3.0(–3.7) times as long as its greatest diameter and (0.9–)1.2(–1.3) of the length of sternal branch *s*, that branch (2.0–)2.1(–2.3) times as long as its greatest diameter; anterodistal corner somewhat more truncate than posterodistal one. Seta *q* as *p* of 4th segment but thinner, (0.9–)1.1 times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 7(–8); F_2 = (69–)81, bs_2 = (8–)10; F_3 = (75–)76(–82), bs_3 = (7–)10. F_1 5.0(–5.4) times as long as *t*, F_2 and F_3 (2.1–)2.5(–2.6) and (2.5–)2.7(–2.8) times as long as *s* respectively. Distal calyces somewhat flattened; distal part of flagella axes fusiformly widened below calyces. Globulus *g* 1.2(–1.5) times as long as wide, (10–)11(–12) bracts, capsule subspherical; width of *g* (0.9–)1.0 of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 23C, D): setae of collum segment (Figure 23C) furcate, main branch blunt, annulate, secondary branch rudimentary, glabrous, sublateral setae (2.2–)2.5(–2.8) times as long as submedian setae; sternite process small, blunt, extended anteriorly; appendages with straight posterior side, caps hemispherical entire; process faintly granular, appendages glabrous.

Setae on tergites as sublateral setae of head; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 23D) (0.6–)0.7 of interdistance and about as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figure 23E): relative lengths: T_1 = 100,

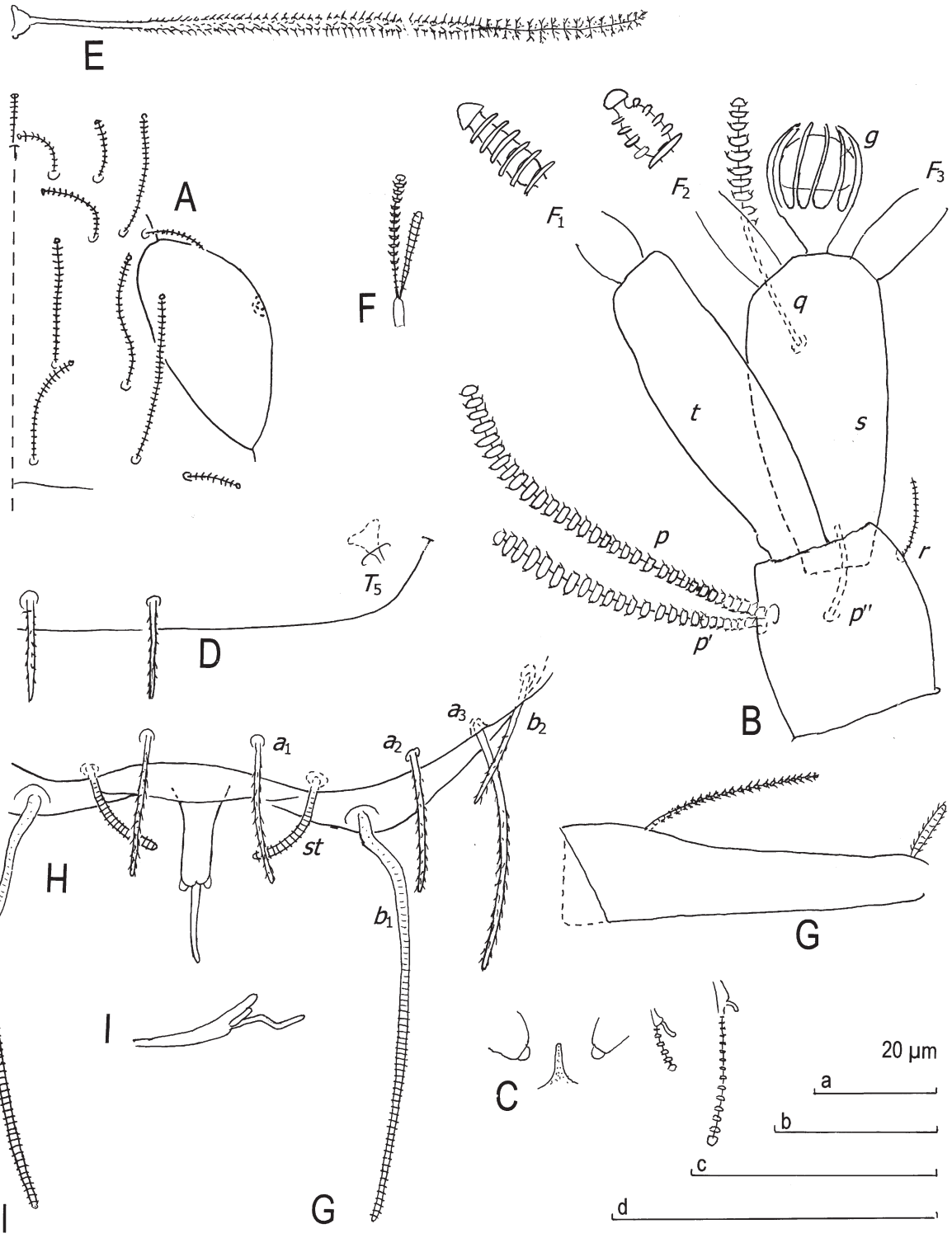

FIGURE 23 *Decapauropus haplotes* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, right antenna, tergal view; C, collum segment, median and left part, sternal view; D, tergite VI, posteriomedian and right posterior part; E, T_3; F, seta on trochanter of leg 9; G, tarsus of leg 9; H, posteriomedian and right part of the pygidium, tergal view; I, anal plate, lateral view. Scale a: Figure E; b: Figures A, C, D, F, G; c: Figures H, I; d: Figure B.

T_2 = (101–109), T_3 = (110–)114(–125), T_4 = 119(–135), T_5 = (170–)172(–187); axes simple, in T_3 (Figure 23E) thickened in proximal ¾; pubescence on distal half of T_1 and T_2, distal ¼ of T_3 and T_4 with branched hairs in whorls, for the rest and on T_5 with short, simple, oblique hairs.

Genital papillae small, 1.5(–1.7) times as long as their greatest diameter, seta 0.4 of length of papilla.

Legs (Figures 23F, G): setae on coxa and trochanter (Figure 23F) of leg 9 furcate, blunt, striate, secondary branch 2/3 of the length of primary one; corresponding setae on more anterior legs simple and coxal setae there clavate. Tarsus of leg 9 (Figure 23G) tapering, 3.8(–4.3) times as long as its greatest diameter; setae cylindrical, proximal seta annulate, (0.4–)0.5 of the length of tarsus, and (2.1–)2.9 times as long as striate distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 23H, I).

Tergum: posterior margin between *st* with broad indentation. Relative lengths of setae: a_1 = 10, a_2 = (9–)10(–11), a_3 = (16–)17(–18), *st* = (7–)8(–9); *a*-setae almost straight, with short pubescence, a_1 somewhat curved outward, a_2 and a_3 somewhat curved inward. *st* striate, curved inward and converging. Distance a_1–a_1 (1.8–)2.0(–2.4) times as long as a_1; distance a_1–a_2 (1.8–)2.0(–2.4) times as long as distance a_2–a_3; distance *st*–*st* (1.8–)2.1(–2.3) times as long as *st* and (1.7–)2.1(–2.3) times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with broad, shallow indentation and low lobe above anal plate. Relative lengths of setae (pygidial a_1 = 10): b_1 = (28–)29(–36), b_2 = 10(–12); setae cylindrical, b_1 striate distally, b_2 with short pubescence, curved inward; b_1 1.3(–1.6) times as long as interdistance; b_2 0.7(–0.8) of distance b_1–b_2.

Anal plate (Figure 23H, I) broadest anteriorly, linguiform, (1.8–)2.5 times as long as broad, lateral margins a little concave, posterior margin rounded and with a cylindrical, blunt appendage protruding backward, length of appendage (0.7–)0.8 of the length of plate. Plate with appendage glabrous.

ETYMOLOGY

From the Greek haplotes = singleness (referring to the posterior unpaired appendage of the anal plate).

Decapauropus heis Scheller, 2009

Decapauropus heis Scheller 2009b: 294–296, figures 25–38.

Allopauropus (Decapauropus) sp. 3: Greenslade 2008: 156, 158, 159.

DISTRIBUTION

Tasmania, in the northwest: Bradshaws Road and Hibbs Lagoon; in the north: Saxons Creek; in the southwest: Riveaux Creek and Old Farm Road at Mt Wellington; in the southeast: Big Sassy Creek, Sandspit River, Tasman Peninsula and Mt Mangana on Bruny Island. Not known outside Australia.

Decapauropus hispidus sp. nov.

urn:lsid:zoobank.org:act:3F90B7B8-8215-4401-9D46-97DF3CEC612D

Figure 24A–J

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*****:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 18 August 1981 (WAM T125528).

Paratypes

Australia: ***Western Australia*****:** 2 ad. 9(□), same data as holotype (WAM T125529).

Non-type

Australia: ***Western Australia*****:** 1 ad. 9(□), same data except 26 August 1981.

DIAGNOSIS

Some characters of the antennae, bothriotricha and pygidium in *D. hispidus* sp. nov. resemble those in *D. macrosphaerus* and *D. angadus,* both described by Remy (1952a) from Morocco. Distinguishing characters are the shape of the bothriotricha T_3, axes distinctly thickened also below end-swelling in *D. hispidus*, not thickened in *D. macrosphaerus* and *D. angadus* and in relation to *D. macrosphaerus* are the distal seta of the tarsi, simple, not two seta (Remy 1952a, p. 151:"2 poils côte à côte près de l'extrimité distal" (that probably means a furcate seta, later described in many species), and the shape of the *st*, long cylindrical, not short clavate. A further character distinguishing the new species from *D. angadus* is the relative lengths of the setae *p* and *r* of the 4th antennal segment, *p* three times longer than *r*, not ≈1.1 times as long as that length. The new species may also be connected with *D. perexiguus* Remy from Réunion (Remy1957a), but to a less degree.

DESCRIPTION

Adult female holotype (and paratypes)

Length: (0.44–0.50(–0.52) mm.

Head (Figure 24A): setae a_1 in 1st row rudimentary; other setae cylindrical, annulate, blunt. Relative lengths of setae, 1st row: a_2 = 10; 2nd row: a_1 = (12–)15, a_2 = 17(–18), a_3 = (11–)14; 3rd row: a_1 = 11(–14), a_2 = 14; 4th row: a_1 = (9–)12, a_2 = (20–)25, a_3 = (18–)20, a_4 = (20); lateral group setae not studied. Ratio a_1/a_1–a_1 in 2nd row (0.6–)0.8, 3rd row 0.8, 4th row 1.3. Temporal organs ovoid in tergal view, (1.1–)1.2 times as long as shortest interdistance; aperture in posterior part not ascertained. Head cuticle glabrous.

Antennae (Figure 24B): segment 4 with rudimentary

u and four cylindrical blunt, densely annulated setae, their relative lengths: p = 10, p' = 4, p'' = 2(–3), r = 4(–6). Tergal seta p (1.8–)2.1 times as long as tergal branch *t*. The latter branch fusiform, 1.7 times as long as its greatest diameter and as long as the length of sternal branch *s*, that branch (1.3–)1.5 times as long as its greatest diameter; anterodistal corner truncate. Seta *q* subcylindrical, annulate, blunt, as long as (–1.2 times as long as) *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 6(–8); F_2 = 38(–39), bs_2 = 4(–5); F_3 = 83(–88), bs_3 = 8(–9). F_1 (4.7–)4.9(–5.0) times as long as *t*, F_2 and F_3 (1.8–)1.9(–2.0) and (4.1–)4.5 times as long as *s* respectively. Distal calyces somewhat flattened; distal part of flagella axes

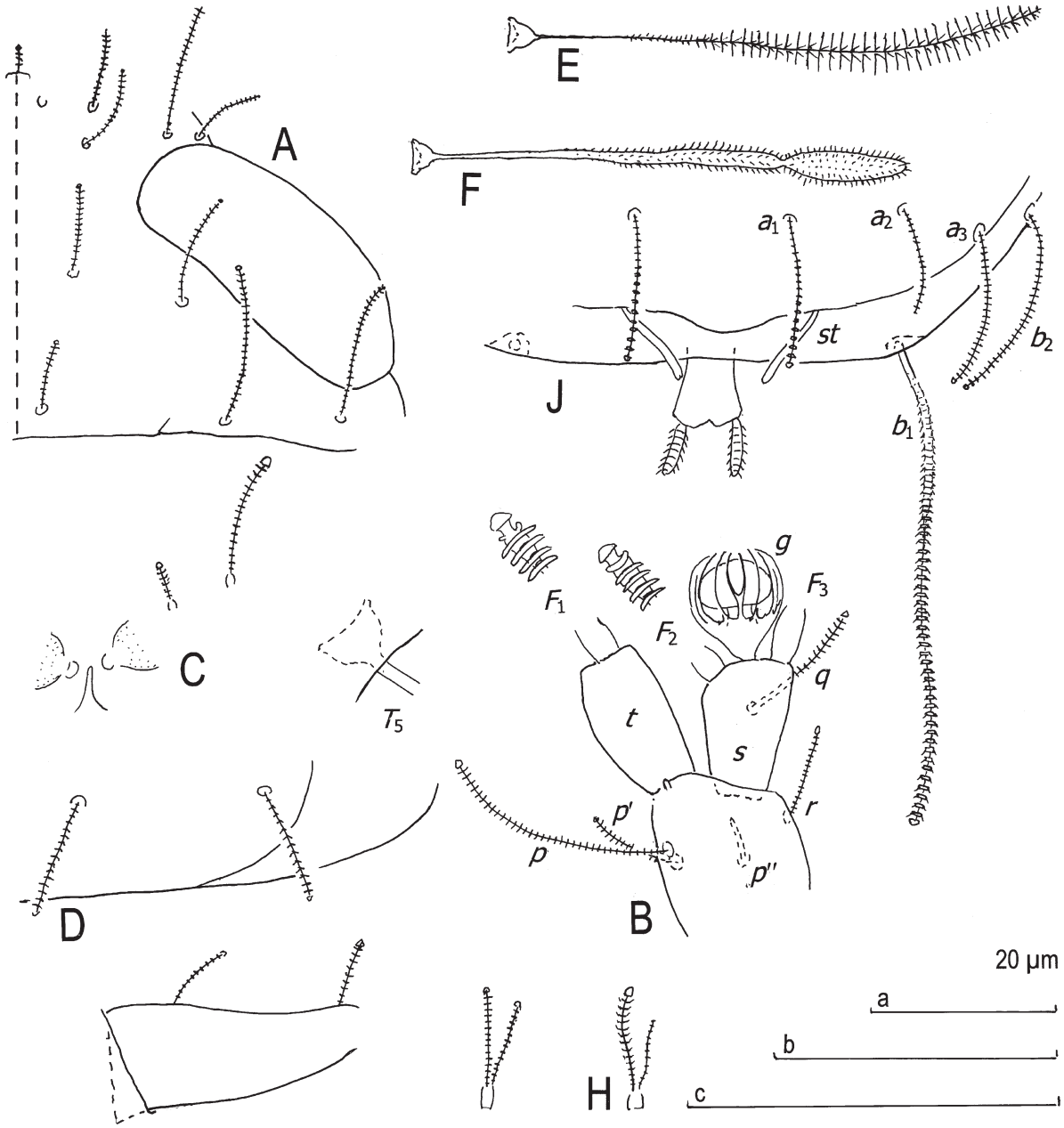

FIGURE 24 *Decapauropus hispidus* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, right antenna, tergal view; C, collum segment, median and left part, sternal view; D, tergite VI, posteriomedian part and right posteriolateral corner; E, T_1; F, T_3; G, seta on coxa of leg 9; H, seta on trochanter of leg 9; I, tarsus of leg 9; J, posteriomedian and right part of the pygidium, tergal view. Scale a: Figures C, E, F; b: Figures A, B, G–I; c: Figures D, J.

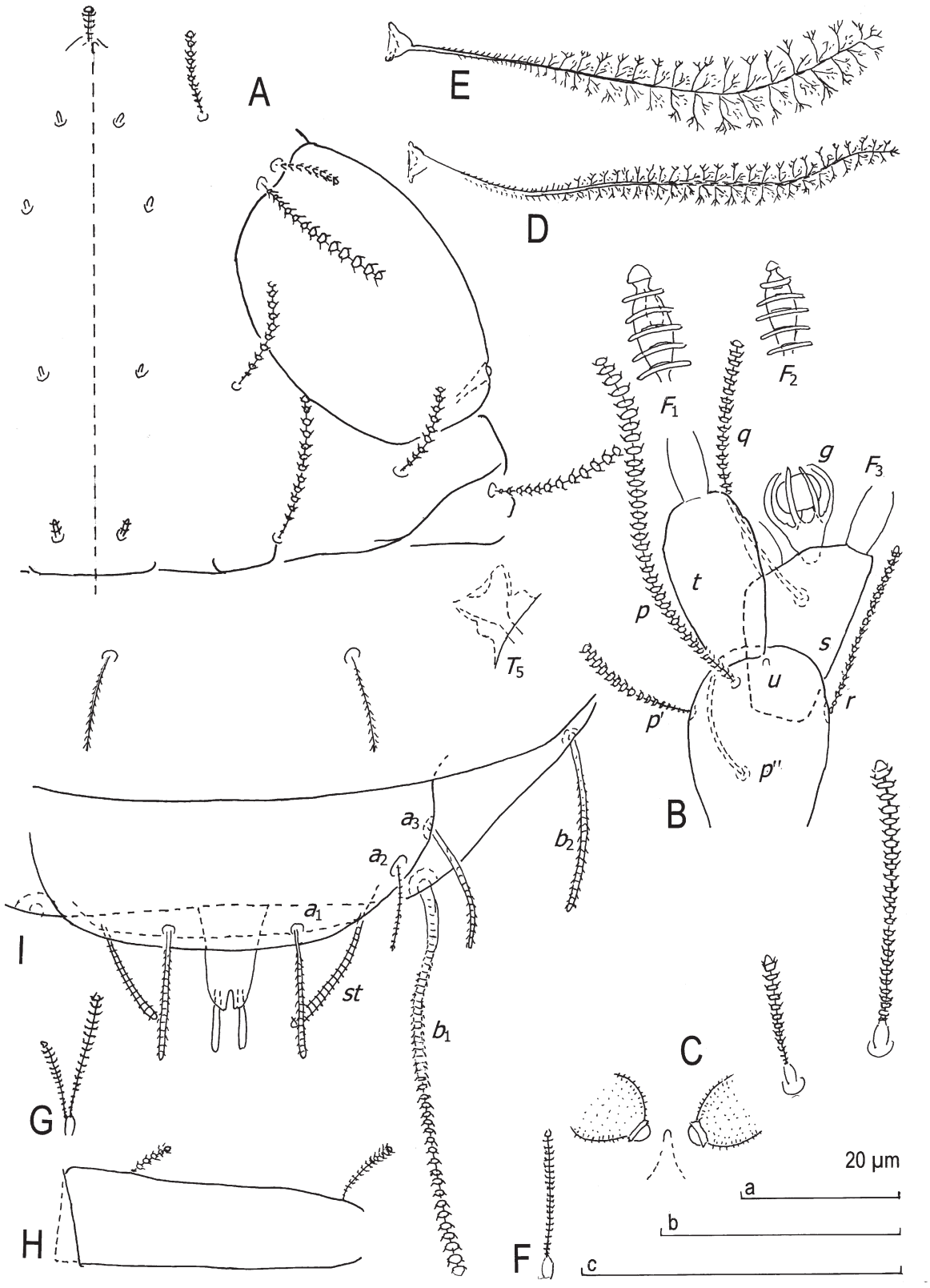

FIGURE 25 *Decapauropus hypopsilos* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, left antenna, tergal view; C, collum segment, median and left part, sternal view; D, T_3; E, T_1; F, seta on coxa of leg 9; G, seta on trochanter of leg 9; H, tarsus of leg 9; I, posterior part of tergite VI and posteriomedian and right part of the pygidium, tergal view. Scale a: Figures D, E; b: Figures A, F–H; c: Figures B, C, I.

a little widened below calyces. Globulus *g* large, almost spherical, 1.1 times as long as wide, ≈15 bracts, capsule with flattened bottom; width of *g* 1.2 times as long as greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 24C–D): setae of collum segment (Figure 24C) simple, subcylindrical, annulate, blunt; sublateral ones (2.5–)3.0 times as long as submedian ones; sternite process with narrow, blunt, anterior extension; appendages and caps hemispherical, the latter small; process glabrous, appendages faintly pubescent.

Setae as on head; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 24D) (0.6–)0.7 of interdistance and as long as the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures 24E, F): relative lengths: T_1 = 100, T_2 = 103(–109), T_3 = 91(–107), T_4 = 107(–120), T_5 = 138(–154); all but T_3 with thin simple axes. Pubescence proximally and on whole the T_5 of simple hairs, long, erect, and in whorls on T_1 (Figure 24E), T_2 and T_4, short oblique on T_5. The T_3 (Figure 24F) with ovoid end-swelling and axis below it thickened, pubescence on whole the T_3simple short, dense, almost erect.

Legs (Figures 24G–I): setae on coxa (Figure 24G) and trochanter (Figure 24H) of leg 9 furcate, branches cylindrical blunt annulate, secondary branch almost as long as primary one on coxal seta, distinctly shorter on seta on trochanter. Tarsus of leg 9 (Figure 24 I) distinctly tapering, 2.3(–2.8) times as long as its greatest diameter. Setae cylindrical annulate blunt, proximal one (0.2–)0.3 of the length of tarsus and (0.9–)1.1(–1.2) times as long as the length of distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 24J).

Tergum: posterior margin rounded but with small rounded lobe between *st*. Relative lengths of setae: a_1 = 10, a_2 = 7(–9), a_3 = (8–)9(–10), *st* = (5–)6; all setae thin, cylindrical, blunt, *a*-setae densely annulate, somewhat curved inward, *st* glabrous, converging. Distance a_1–a_1 (0.8–) as long as a_1; distance a_1–a_2 1.5(–1.7) times as long as distance a_2–a_3; distance *st*–*st* 2.0(–2.4) times as long as *st* and 1.3(–1.4) times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 straight. Relative lengths of setae (pygidial a_1 = 10): b_1 = (26–)33, b_2 = (11–)14; setae cylindrical, annulate–striate, b_2 curved inward; b_1 (1.1–)1.2 times as long as interdistance; b_2 (0.9–)1.1 of distance b_1–b_2.

Anal plate (Figure 24J) glabrous, narrowest anteriorly, 1.3(–1.7) times as long as broad, lateral margins concave, posterolateral corners cut obliquely and posterior margin with shallow, broadly V-shaped incision; two cylindrical, blunt, striate appendages protruding backward from posterolateral truncations, length of appendages (0.6–)0.7(–0.8) of the length of plate.

ETYMOLOGY

From the Latin hispidus = unshaved (referring to the pubescence of the bothriotricha T_3).

***Decapauropus hypopsilos* sp. nov.**

urn:lsid:zoobank.org:act:8C8586FD-49FE-4511-82FA-BE4813C3AF02

Figure 25A–I

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 25 July 1980 (WAM T125530).

Paratypes

Australia: ***Western Australia*:** 2 ad. 9(□); same data as holotype (WAM T125531).

DIAGNOSIS

D. hypopsilos sp. nov. shows striking resemblance to *D. insularis* Scheller from Sri Lanka (Scheller 1970) but differs especially by the length of the *a*-setae of the head, rudimentary in *D. hypopsilos*, well-developed in *D. insularis*, by the type of the ramification of the pubescence of the bothriotricha T_1, $T_2$and T_4, long pubescence hairs branched most distally, not with curved branches with short pubescence, and by the shape of the *st*, only somewhat clavate and almost as long as pygidial setae a_1, not distinctly clavate and much shorter than a_1.

DESCRIPTION

Adult female holotype (and paratypes)

Length: (0.46–)0.72(–0.77) mm.

Head (Figure 25A): setae a_1 in 1st, 2nd and 3rd rows rudimentary, glabrous, in 4th row very short with a few pubescence hairs only; other setae subcylindrical, blunt, annulate. Relative lengths of setae (holotype only), 1st row: a_1 = 1, a_2 = 7; 2nd row: a_1 = 1, a_2 = 13, a_3 = 5; 3rd row: a_1 = 1, a_2 = 10; 4th row: a_1 = 2, a_2 = 12, a_3 = 7, a_4 = 12; lateral group setae not studied. Temporal organs large, ovoid in tergal view, 1.2(–1.5) times as long as shortest interdistance; small aperture in posterior part. Head cuticle glabrous.

Antennae (Figure 25B): segment 4 with 5 cylindrical–subcylindrical, annulate setae, *r* long, thin, *u* rudimentary; their relative lengths: p = 10, p' = (3–)4, p'' = 3, r = 4(–5). Tergal seta p (2.1–)2.2 times as long as tergal branch *t*. The latter branch fusiform, 1.7(–1.8) times as long as its greatest diameter and (0.9–)1.0 of the length of sternal branch *s*, that branch (1.5–)1.6 times as long as its greatest diameter, anterodistal corner truncate. Seta *q* cylindrical annulate blunt, 1.6 times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 7(–8); F_2 = (34–)39, bs_2 = 5; F_3 = (81–)85(–86), bs_3 = (6–)7. F_1 5.2(–5.3) times as long as *t*, F_2 and F_3 (1.5–)1.9and (3.9–)4.3 times as long as *s* respectively. Distal calyces broadly conical; distal part of flagella axes fusiformly widened

below calyces. Globulus *g* almost spherical, (1.2–)1.3 times as long as wide, 10 bracts, capsule subspherical; width of *g* 0.8(–0.9) of greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 25C, I): setae of collum segment (Figure 25C) simple, subcylindrical, blunt, annulate, sublateral ones 2.2(–2.9) times as long as submedian ones; sternite process with narrow, blunt, anterior extension; appendages subglobular with thick caps and distinct collar; process glabrous, appendages faintly pubescent.

Setae on tergites as a_2 and a_3 of 4th row on head, somewhat lengthening posteriorly; 4+4 setae on tergite I, 6+6 on II–III, 6+? on VI–V, 4+2 on VI. Submedian posterior setae on tergite VI (Figure 25 I) thin cylindrical, blunt, length 0.4(–0.5) of interdistance and 0.8 of the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures 25D, E): relative lengths: T_1 = 100, T_2 = 103(–109), T_3 = 100(–118), T_4 = 110(–115), T_5 = (118–)123; axes simple, strongest in T_3 (Figure 25D), pubescence on proximal parts of simple hairs, otherwise long, branched hairs, longest on T_1 (Figure 25E) and T_2.

Legs (Figures 25F-H): setae on coxa (Figure 25F) and trochanter (Figure 25G) of leg 9 cylindrical blunt, annulate, simple on coxa, furcate with secondary branch half of the length of primary branch on trochanter. Tarsus of leg 9 (Figure 25H) inconsiderably tapering, 3.1(-3.3) times as long as its greatest diameter. Setae annulate, blunt, proximal seta cylindrical, 0.2(–0.3) of the length of tarsus and 0.7 of the length of distal, somewhat clavate seta. Cuticle of tarsus glabrous.

Pygidium (Figure 25 I).

Tergum: posterior margin evenly rounded. Relative lengths of setae: a_1 = 10, a_2 = (7–)8, a_3 = 10, *st* = (8–)9; all thin, blunt, striate, a_1 straight, the others curved inward, a_2 and *st* converging, a_3 diverging, *st* somewhat clavate. Distance a_1–a_1 as long as a_1; distance a_1–a_2 about twice longer than distance a_2–a_3; distance st–*st* (2.0–)2.1 times as long as *st* and (1.5–)2.0 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 straight. Relative lengths of setae (pygidial a_1 = 10): b_1 = 31(–36), b_2 = 12(–14); setae cylindrical, b_1 annulate–striate, b_2 striate, curved inward; b_1 1.0(–1.2) times as long as interdistance; b_2 (0.6–)0.8 of distance b_1-b_2.

Anal plate (Figure 25 I) broadest anteriorly, (1.5–)1.6 times as long as broad, wedge-shaped, with small, V-shaped, distal incision, two cylindrical, blunt, striate appendages protruding backward from distal part of sternal side, their length 0.6 of the length of plate. Plate glabrous.

ETYMOLOGY

From the Greek hypopsilos = somewhat bald (referring to the rudimentary setae on the central part of the head).

***Decapauropus improcerus* sp. nov.**

urn:lsid:zoobank.org:act:4BD92504-1033-4DE5-98A6-C07843C640DF

Fig 26A–K

MATEERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 19 May 1981 (WAM T125532).

Paratype

Australia: ***Western Australia*:** 1 ad. 9(□), same data as holotype except 26 August 1981 (WAM T125533).

DIAGNOSIS

Decapauropus improcerus sp. nov. has several characters which are widely spread in the genus but the combination rudimentary setae a_1 in the rows 1-3 of the tergal head setae and the peculiar shape of the anal plate with two posterior discoid horizontal appendages is clearly distinguishing it from other species in the genus. At present its relationships cannot be traced

DESCRIPTION

Adult female holotype (and paratype)

Length: 0.42(–0.51) mm.

Head (Figures 26A, B): setae of short-medium length, cylindrical, blunt, annulate; a_1 of rows 1-3 rudimentary, relative lengths of other setae, 1st row: a_2 = 10; 2nd row: a_2 = 17(–21), a_3 = (9–)10; 3rd row: a_2 = (12–)13; 4th row: a_1 = (7–)9, a_2 = (15–)16, a_3 = (12–)16, a_4 = 13; lateral group setae not studied. Ratio a_1/a_1–a_1 in 4th row (1.4–)1.5. Temporal organs ovoid in tergal view, as long as shortest interdistance; small aperture near posterior margin (Figure 26B). Head cuticle glabrous.

Antennae (Figure 26C): segment 4 with 4 cylindrical blunt annulate setae, neither *p*‴ nor *u*; relative lengths of setae: *p* = 10, *p*′ = *p*″ = 3(-4), *r* = 8. Tergal seta *p* (2.0–)2.1 times as long as tergal branch *t*. The latter branch 1.6(–1.7) times as long as its greatest diameter and 0.9 of the length of sternal branch *s*, that branch 1.5 times as long as its greatest diameter; anterodistal corner truncate. Seta *q* as seta *p* of 4th segment, but somewhat thicker, 2.1 times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 8; F_2 = 34(–36), bs_2 = 6; F_3 = 88(–90), bs_3 = 9. F_1 5.6 times as long as *t*, F_2 and F_3 1.6 and 2.6 times as long as *s* respectively. Distal calyces flattened; distal part of flagella axes fusiformly widened below calyces. Globulus *g* 1.1 times as long as wide, ≈13 bracts, capsule somewhat flattened; width of *g* as long as greatest diameter of *t*. Antennae glabrous.

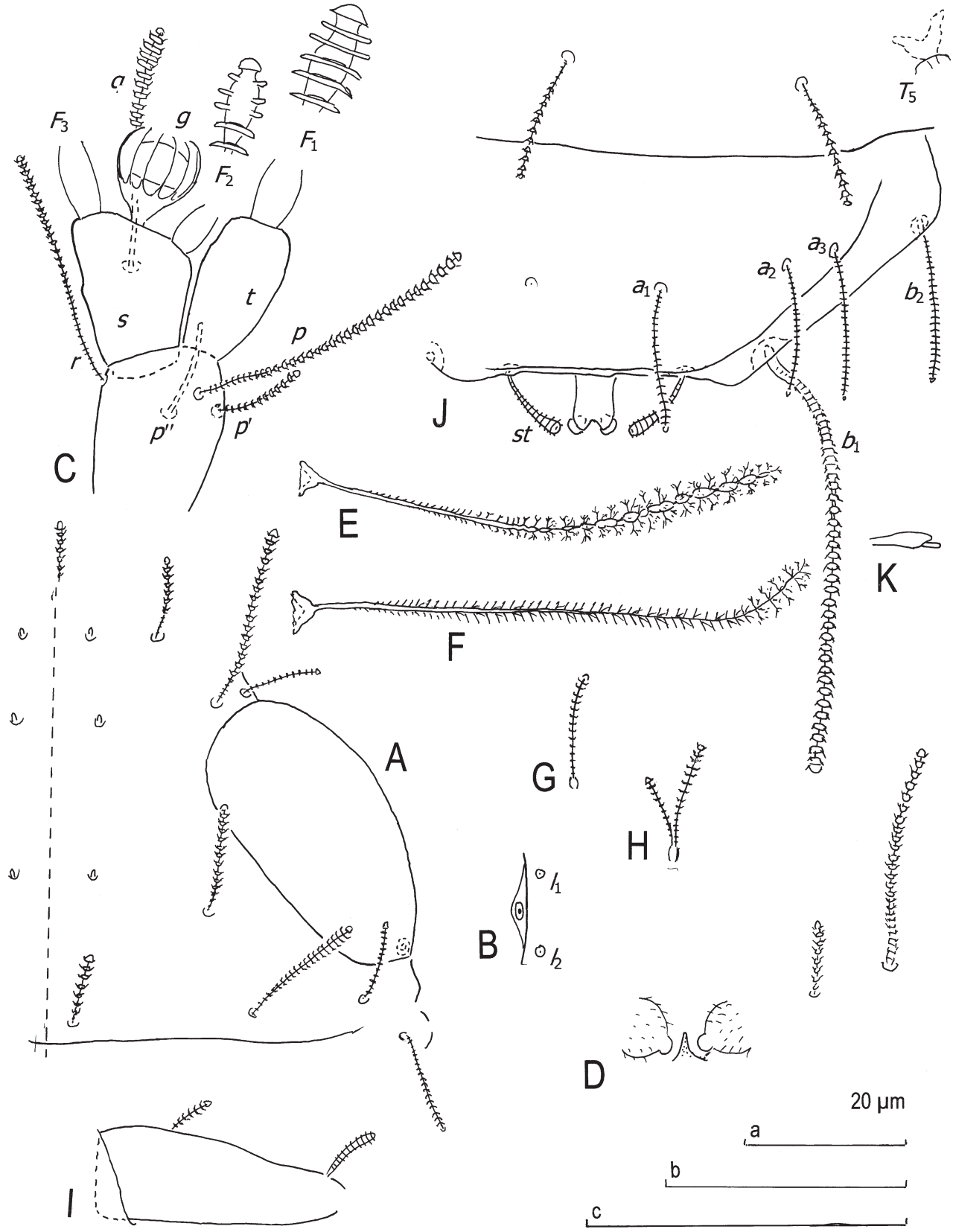

FIGURE 26 *Decapauropus improcerus* sp. nov., holotype, adult 9(□): A, head, median and right part, tergal view; B, pore at posterior margin of left temporal organ; C, right antenna, tergal view; D, collum segment, median and left part, sternal view; E, T_3; F, T_5; G, seta on coxa of leg 9; H, seta on trochanter of leg 9; I, tarsus of leg 9; J, pygidium and posteriomedian part of tergite VI, tergal view; K, anal plate, lateral view. Scale a: Figures E, F; b: Figures A, B, D, G–I; c: Figures C, J, K.

Trunk (Figures 26D, J): setae of collum segment (Figure 26D) simple, cylindrical, blunt, annulate, sublateral setae 3.0 times as long as submedian ones; sternite process small, narrow anteriorly; appendages subspherical, caps small, hemispherical, process faintly granular, appendages with sparse but distinct pubescence.

Setae on tergites as medium size setae of head; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 26J) 0.5 of interdistance and (0.8–)0.9 of the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figure 26E, F): relative lengths: T_1 = 100, T_2 = 100(–105), T_3 = 101(–108), T_4 = 114(–117), T_5 = 119(–120); axes thin, but in T_3 (Figure 26E) nodular in distal half. Pubescence hairs simple, straight proximally, and on main part of T_5 (Figure 26F), otherwise ramose.

Legs (Figures 26G–I): setae on coxa (Figure 26G) and trochanter (Figure 26H) of leg 9 cylindrical, blunt, annulate, simple on coxa, furcate on trochanter. Tarsus of leg 9 (Figure 26 I) strongly tapering, 2.6(–3.0) times as long as its greatest diameter. Setae somewhat clavate annulate–striate, proximal one 0.2 of the length of tarsus and 0.7(–0.8) of the length of distal seta. Cuticle of tarsus glabrous.

Pygidium. (Figures 26J, K).

Tergum: posterior margin behind a_1 straight. Relative lengths of setae: a_1 = 10, a_2 = 9(–10), a_3 = 11, *st* = 6; *a*-setae cylindrical, blunt, annulate and almost straight, *st* clavate, striate, curved inward, converging. Distance a_1–a_1 (0.7–)0.9 of the length of a_1; distance a_1–a_2 twice longer than distance a_2–a_3; distance *st*–*st* 2.2 times as long as *st* and 1.3 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 shallowly indented. Relative lengths of setae (pygidial a_1 = 10): b_1 = 31(–33), b_2 = 11(–12); setae annulate–striate; b_1 1.3 times as long as interdistance; b_2 0.8 of the length of distance b_1–b_2.

Anal plate (Figures 26J, K) rectangular, glabrous, 1.6 times as long as broad, lateral margins somewhat concave, posterior margin with shallow V-shaped indentation and two posteriorly directed discoid appendages protruding backward from posterior part of sternal side, length of appendages 0.3 of the length of plate.

ETYMOLOGY

From the Latin improcerus = short, undersized (referring to the a_1-setae of the rows 1-3 on the tergal side of the head).

***Decapauropus inordinatus* sp. nov.**

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Figure 27A–I

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 14 September 1980 (WAM T125534).

Paratype

Australia: *Western Australia*: 1 ad. 9(□), same data as holotype except 18 July 1980 (WAM T125535).

DIAGNOSIS

Decapauropus inordinatus may be closest to *D. zenatus* Remy described from North Africa (1952b). Distinguishing characters are the shape of the bothriotricha T_3, no distal swelling in *D. inordinatus,* with end-swelling in *D. zenatus*, the distal part of the pygidial tergum, with low rounded lobe, not distinct triangular lobe, and the length of the appendages of the anal plate, lateral ones twice longer than submedian ones, not all of the same length.

DESCRIPTION

Adult male holotype (and paratype)

Length: (0.35–)0.46 mm.

Head (Figure 27A): setae of short–medium length, cylindrical, blunt, annulate; their relative lengths: 1st row: a_1 = 10,a_2 = 9(–10); 2nd row: a_1 = 11(–13), a_2 = (20–)24, a_3 = (14–)16; 3rd row: a_1 = 11, a_2 = 14(–15); 4th row: a_1 = 11, a_2 = a_3 = (20–)22, a_4 = 21; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 1.0, 2nd row (0.8–)0.9, 3rd row (0.7–)0.9, 4th row (1.2–)1.4. Temporal organs ovoid in tergal view, as long as shortest interdistance; small pistil with canal inward in posterior part. Head cuticle glabrous.

Antennae (Figure 27B): segment 4 with 6 blunt, annulate, setae, *p* subcylindrical, thickening distally, *p′*, *p″* and *r* cylindrical, *r* long and thin, *p‴* rudimentary, *u* very short; relative lengths of setae: *p* = 10, *p′* = 4, *p″* = (3–)4, *r* = 7. Tergal seta *p* (2.3–)2.5 times as long as tergal branch *t*. The latter branch 1.5(–1.6) times as long as its greatest diameter and 0.8 of the length of sternal branch *s*, that branch (1.5–)1.6 times as long as its greatest diameter; anterodistal corner truncate. Seta *q* as seta *p* of 4th segment, 1.2(–1.5) times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = (8–)9; F_2 = (33–)37, bs_2 = (6–)7; F_3 = 85, bs_3 = 7. F_1 5.1(–5.5) times as long as *t*, F_2 and F_3 1.5(–1.7) and 3.5(–3.9) times as long as *s* respectively. Distal calyces somewhat flattened; distal part of flagella axes fusiformly widened below calyces.

Globulus *g* as long as wide, ≈14 bracts, capsule with flattened bottom; width of *g* as long as greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 27C, D): setae of collum segment (Figure 27C) simple, cylindrical blunt, striate–annulate, sublateral setae (3.7–)4.0 times as long as submedian ones; sternite process small, indistinct, narrow anteriorly; appendages subconical, caps small, hemispherical, process and appendages glabrous.

Setae on tergites cylindrical, blunt, densely annulate; 4+4 setae on tergite I, 6+6 on II–IV, 6+?4 on V, 4+2 on VI. Submedian posterior setae on VI (Figure 27D) as long as interdistance and 1.1 times as long as pygidial setae a_1. Tergites glabrous.

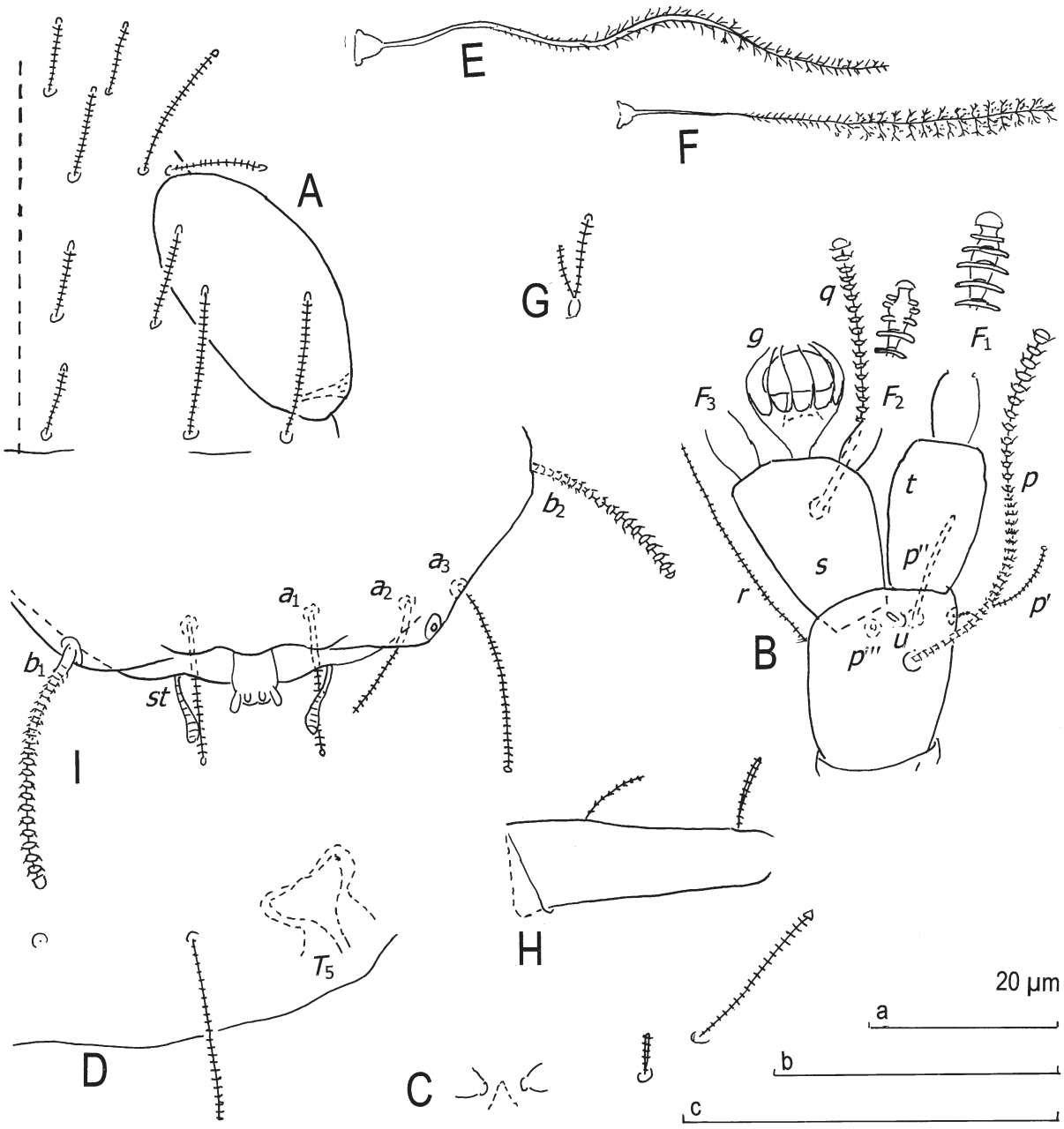

FIGURE 27 *Decapauropus inordinatus* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, left antenna, tergal view; C, collum segment, median and left part, sternal view; D, tergite VI, posterior part; E, T_1; F, T_3; G, seta on trochanter of leg 9; H, tarsus of leg 9; I, pygidium, posterior and left side, sternal view. Scale a: Figures E, F; b: Figures A, C, G, H; c: Figures B, D, I.

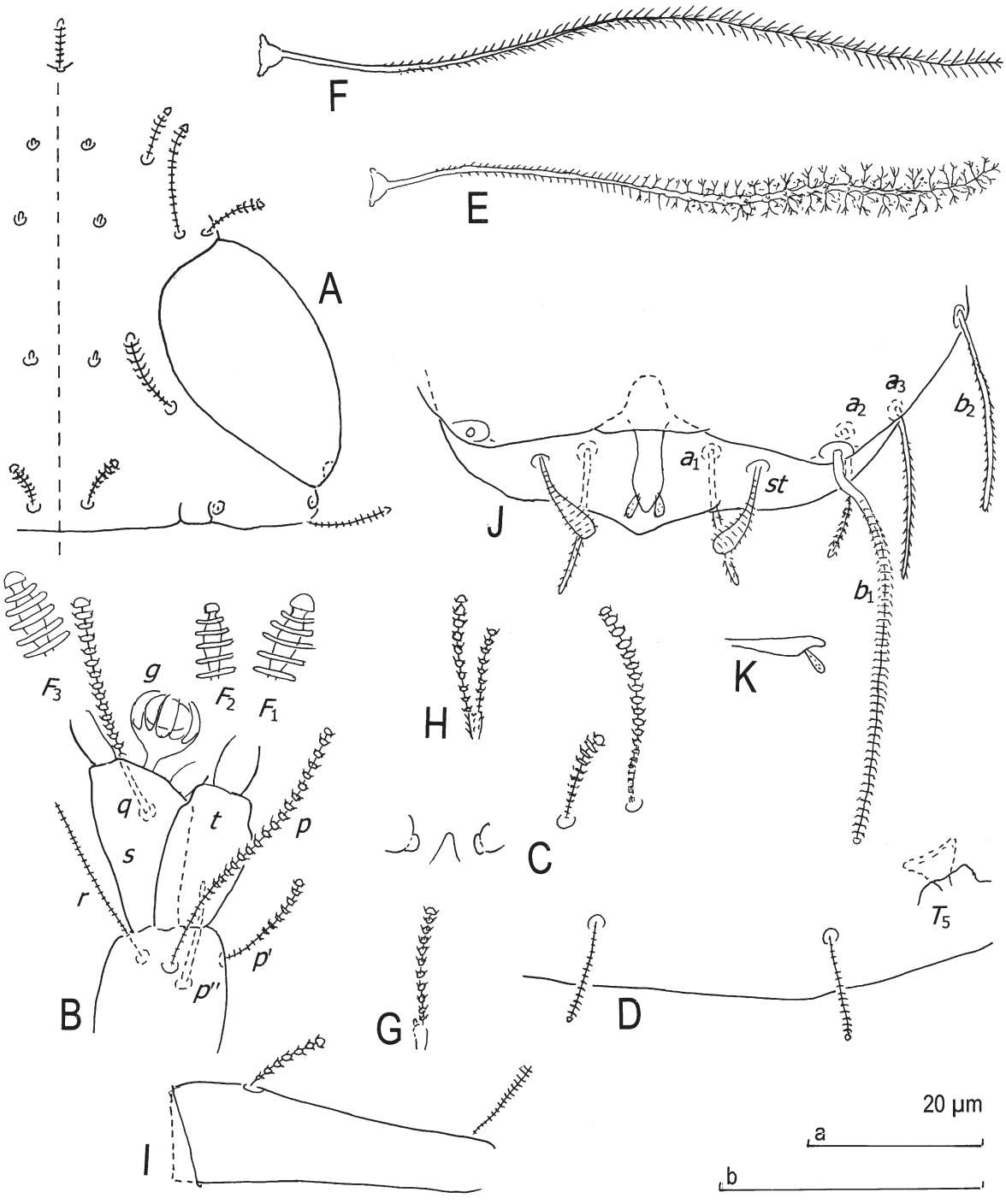

FIGURE 28 *Decapauropus kartotrichos* sp. nov., holotype ad. 9(□): A, head, median and right part, tergal view; B, left antenna, tergal view; C, collum segment, median and left part, sternal view; D, tergite VI, posterior part; E, T_3; F, T_5; G, seta coxa of leg 9; H, seta on trochanter of leg 9; I, tarsus of leg 9; J, pygidium, posterior and left part, sternal view; K, anal plate, lateral view. Scale a: Figures A, E, F; b: Figures B–D, G–K.

Bothriotricha (Figures 27E, F): relative lengths: T_1 = 100, T_2 = 98(–122), T_3 = (102–)136, T_4 = (96–)130, T_5 = 96(–141); axes thin, a little thickened in T_3 (Figure 27 F) and T_5; pubescence of simple hairs on proximal halves and on T_4 and T_5, hairs branched on T_1 (Figure 27E) and T_2, and to some part on T_3.

Legs (Figures 27G, H): setae on coxa and trochanter (Figure 27G) of leg 9 furcate cylindrical, annulate, blunt, secondary branch shorter than main branch. These setae simple more anteriorly. Tarsus of leg 9 (Figure 27H) tapering, 2.7 times as long as its greatest diameter. Setae striate, proximal one cylindrical pointed, distal one somewhat clavate, proximal seta 0.3 of the length of tarsus and 0.7(–0.8) of the length of distal seta. Cuticle of tarsus glabrous.

Pygidium. (Figure 27 I).

Tergum: posterior margin behind a_1 with low rounded lobe. Relative lengths of setae: a_1 = 10, a_2 = 9, a_3 = (12–)13, *st* = 6; *a*-setae cylindrical, blunt, striate–annulate, a_2 and a_3 curved inward, the former also converging, *st* clavate, indistinctly striate, faintly S-shaped, somewhat converging. Distance a_1–a_1 0.9 of the length of a_1; distance a_1–a_2 twice longer than distance a_2–a_3; distance *st*–*st* 1.9 times as long as *st* and 1.2 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 almost straight. Relative lengths of setae (pygidial a_1 = 10): b_1 = (19–)24, b_2 = 12; setae striate–annulate; b_1 shorter than their interdistance; b_2 0.9 of distance b_1–b_2.

Anal plate (Figure 27 I) glabrous linguiform, (1.1–)1.2 times as long as broad, lateral margins almost straight, posterior margin with inconsiderable incision and four cylindrical appendages protruding backward from sternal side, lateral ones longest, (0.3–)0.4 of the length of plate, inner ones very short.

ETYMOLOGY

From the Latin inordinatus = disarranged (referring to the pubescence on bothriotricha T_3).

***Decapauropus kartotrichos* sp. nov.**

urn:lsid:zoobank.org:act:9427F0DA-A3CA-4AF6-AF78-4EB8D4B4E9E0

Figure 28A–K

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 28 July 1981 (WAM T125536).

Paratypes

Australia: *Western Australia*: 2 ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 18 July 1980 (WAM T125537).

Non-types

Australia: *Western Australia*: 1 ad. 9(□), 2 juv. 6, Murray River site, in soil, 25 July 1980; 2 juv. 5, same data except 14 September 1981.

DIAGNOSIS

Like *Decapauropus vegrandis* sp. nov. described below *D. kartotrichos* sp. nov. has strongly shortened a_1-setae in the rows 1–3 on the tergal side of the head and there are similarities also in the shape of the leg setae and the antennae. They are easiest distinguished by the shape of the posterior margin of the pygidial tergum, with broad triangular lobe behind the setae a_1 in *D. kartotrichos*, straight in *D. vegrandis,* the setae *st* on the pygidial tergum, distinctly clavate, not cylindrical, and by the anal plate, long with posteriomedian triangular lobe, not short with posteriomedian cleft.

DESCRIPTION

Adult female holotype (and paratype)

Length: (0.45–)0.58(–0.62) mm.

Head (Figure 28A): setae subclavate blunt, a_1-setae of rows 1–3 rudimentary glabrous, other tergal setae of medium length, annulate. Relative lengths of setae (holotype only), 1st row: a_1 = 1, a_2 = 7; 2nd row: a_1 = 1, a_2 = 13, a_3 = (6–)8; 3rd row: a_1 = 1, a_2 = 10; 4th row: a_1 = 5, a_2 = ?, a_3 = ?, a_4 = 10; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 0.2, 2nd and 3rd rows 0.1, 4th row 0.8. Temporal organs ovoid in tergal view, 1.4 times as long as shortest interdistance; small pistil in posterior part. Posterior margin of head parted into five lobes, two submedian ones small. Head cuticle glabrous.

Antennae (Figure 28B): segment 4 with 4 cylindrical, blunt, annulate setae; relative lengths of setae: *p* = 10, *p′* = 4, *p″* = 3, *r* = 6. Tergal seta *p* 2.0 times as long as tergal branch *t.* The latter branch 1.8 times as long as its greatest diameter and 0.8 of the length of sternal branch *s*, that branch 1.7 times as long as its greatest diameter, anterodistal corner truncate. Seta *q* as seta *p* of 4th segment but thicker, 1.3(–1.4) times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 7; F_2 = 36(–37), bs_2 = 4; F_3 = (80–)83, bs_3 = 7. F_1 3.4 times as long as *t*, F_2 and F_3 1.7(1.8) and 3.8(4.0) times as long as *s* respectively. Distal calyces helmet-shaped; distal part of flagella axes fusiformly widened below calyces. Globulus *g* spherical on thin stalk, 1.1(1.2) times as long as wide, ≈10 bracts, capsule somewhat flattened; width of *g* 0.9 of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 28C, D): setae of collum segment (Figure 28C) simple, subcylindrical, blunt, annulate, sublateral ones 2.4 times as long as submedian ones; sternite process small, triangular, blunt anteriorly; appendages small, caps subhemispherical, process and appendages glabrous.

Setae on tergites cylindrical, blunt, annulate, 4+4

setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 28D) 0.4(–0.5) of interdistance and 0.8(–0.9) of the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures 28E, F): relative lengths: T_1 = 100, T_2 = 103, T_3 = 104, T_4 = 101, T_5 = (125–)132; all with thin, simple axes, thickest on T_3 (Figure 28E) and T_5 (Figure 28F), pubescence hairs simple on proximal third of T_1–T_4 and whole the T_5, strongest on the latter, pubescence hairs on outer 2/3 of T_1–T_4 thin ramose.

Genital papillae: Not available for study.

Legs (Figures 28G–I): seta on coxa (Figure 28G) simple and trochanter (Figure 28H) of leg 9 furcate, branches cylindrical, blunt, annulate. Tarsus of leg 9 (Figure 28 I) tapering, (2.9–)3.1 times as long as its greatest diameter; setae subcylindrical, blunt, annulate, proximal seta 0.3 of the length of tarsus and almost as long as distal seta. Cuticle of tarsus glabrous.

Pygidium (Figures 28J, K).

Tergum: posterior margin rounded but with broadly triangular lobe posterior of setae a_1. Relative lengths of setae: a_1 = 10, a_2 = (9–)10, a_3 = 13, *st* = 7; *a*-setae cylindrical, blunt, annulate–striate, a_1 curved outward, a_2, a_3 and *st* curved inward, *st* also clavate striate, converging. Distance a_1–a_1 0.9(–1.0) of the length of a_1; distance a_1–a_2 (2.0–)2.5 times as long as distance a_2–a_3; distance *st*–*st* (2.3–)2.4 times as long as *st* and (1.5–)1.7 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 indented shallowly. Relative lengths of setae (pygidial a_1 = 10): b_1 = 33(–37), b_2 = 14(–15); setae cylindrical, blunt, striate–annulate; b_1 (1.2–)1.3 times as long as interdistance; b_2 as long as distance b_1–b_2.

Anal plate (Figures 28J, K) broadest anteriorly, linguiform with concave lateral margins and triangular posterior end, (2.6–)3.2 times as long as broad, posteriolateral corners indistinctly rounded, two short clavate appendages protruding backward–downward from posterior part of sternal side, length of appendages 0.3(–0.4) of the length of plate.

ETYMOLOGY

From the Greek kartos = shortened, and thrix, trichos = hair (referring to the short setae a_1 in the first three rows on the tergal side of the head).

***Decapauropus katernes* sp. nov.**

urn:lsid:zoobank.org:act:9F1EB237-EF67-4451-AAE7-64AD3776DC22

Figure 29A–M

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 15 April 1981 (WAM T125538).

Paratypes

Australia: *Western Australia*: 3 ad. 9(1□, 2□), 1 subad. 8(□), same data as holotype except in litter, 21 July 1981 (WAM T125539); 1 ad. 9(□), 1 subad. 8(□), same data except 29 July 1981 (WAM T125540).

Non-types

Australia: *Western Australia*: 3 ad. 9(1□, 2□), 1 subad. 8(□), 3 juv. 5, same data as holotype except 25 July 1980; 1 ad. 9(□), same data except 14 September 1980; 2 ad. 9(□, □), same data except 18 April 1981; 1 ad. 9(□), same data except 19 May 1981; 1 ad. 9(□), same data except 25 May 1981; 1 ad. 9(□), same data except 28 June 1981; 2 ad. 9(□, □), same data except 28 July 1981; 2 ad. 9(□), same data except 21 September 1981.

DIAGNOSIS

The character combination polyramose bothriotricha T_1–T_4 and legs 1-8 with furcate setae on the tarsi is previously known from the Brazilian *D. anomoios* Scheller and *D. junki* Scheller (1997) but they seem not to be closely related to *D. katernes* because of distinct differences in the shape of the bothriotricha, the segments of the 9th pair of legs and the anal plates.

DESCRIPTION

Adult female holotype (and paratypes)

Length: (0.55–)0.60(–0.71) mm.

Head (Figure 29A): setae short–medium length, cylindrical, blunt, annulate. Relative lengths of setae (holotype only), 1st row:a_1 = 10, a_2 = 20; 2nd row: a_1 = 16, a_2 = 31, a_3 = 16; 3rd row: a_1 = 16, a_2 = 36; 4th row: a_1 = 28, a_2 = 44, a_3 = 32, a_4 = 40; lateral group setae: l_1 = 43, l_2 and l_3 = ?. Ratio a_1/a_1–a_1 in 1st and 2nd rows 0.6, 3rd row 0.7, 4th row 1.2. Temporal organs broad in tergal view, 1.6 times as long as shortest interdistance, small pistil near posterior margin. Posterior margin of head parted into five lobes, the median one largest. Head cuticle glabrous.

Antennae (Figure 29B): segment 4 with 4 cylindrical blunt setae, *p*-setae annulate, *r* striate, *r* long thin; relative lengths of setae: *p* = 10, *p′* = *p″* = 3(–4), *r* = (6–)7. Tergal seta *p* (2.1–)2.3 times as long as tergal branch *t*. The latter branch (1.4–)1.5(–1.6) times as long as its greatest diameter and 0.8(–0.9) of the length of sternal branch *s*, that branch (1.3–)1.5 times as long as its greatest diameter, anterodistal corner truncate. Seta *q* as seta *p* of 4th segment but thinner, 1.4(–1.5) times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = (9–)10(–11); F_2 = (33–)39, bs_2 = (5–)7; F_3 = 74(–85), bs_3 = 9(–10). F_1 (5.4–)5.5(–6.0) times as long as *t*, F_2 and F_3 1.7(–2.1) and 3.4(–3.9) times as long as *s* respectively. Distal calyces somewhat flattened; distal part of flagella axes fusiformly widened below calyces. Globulus *g* (1.1–)1.2 times as long as wide, ≈9 bracts, capsule with flattened

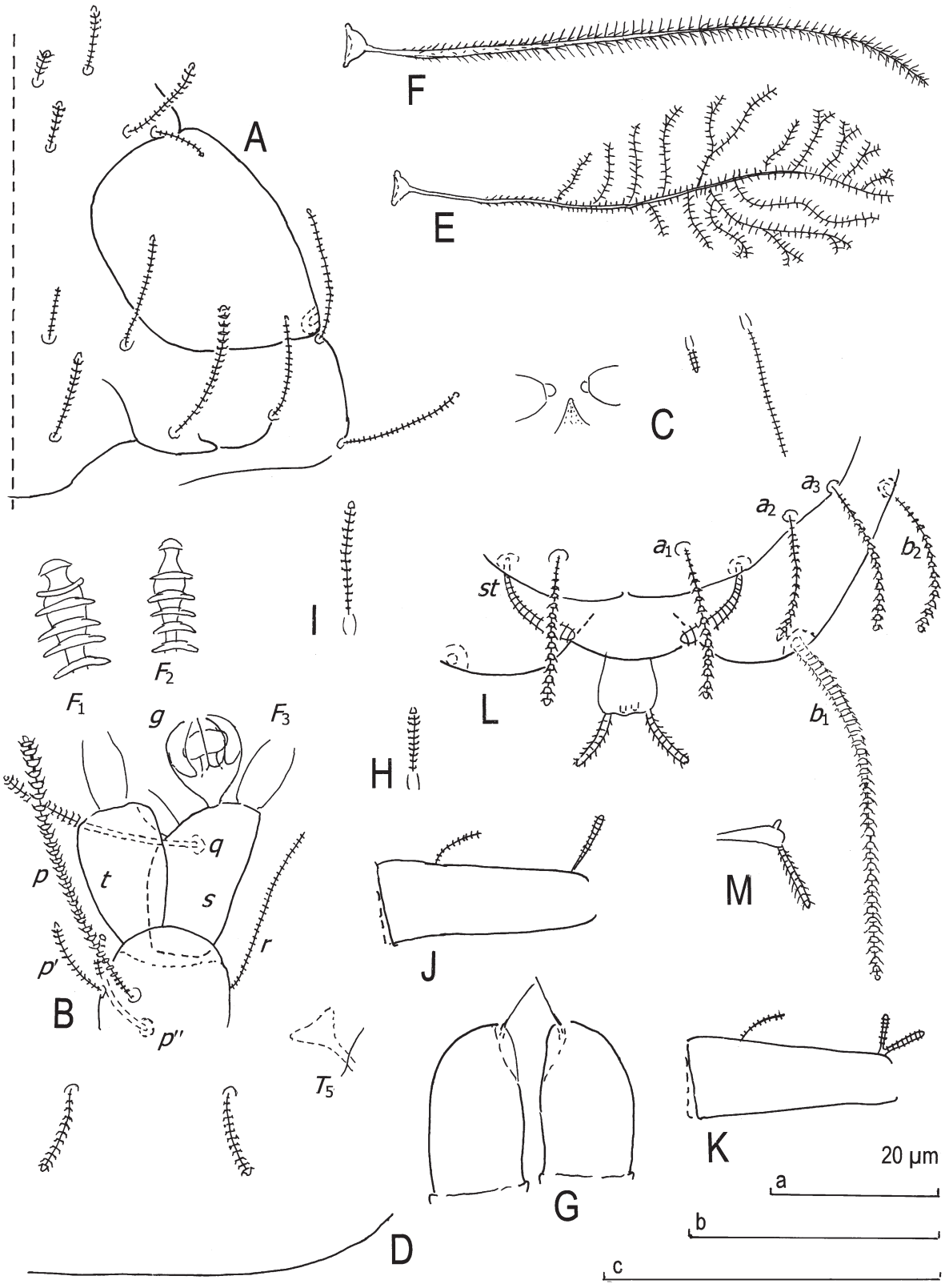

FIGURE 29 *Decapauropus katernes* sp. nov., A–F, H–M, holotype ad. 9(□), G, paratype ad. 9(□): A, head, median and left part, tergal view; B, right antenna, tergal view; C, collum segment, median and left part, sternal view; D, tergite VI, posterior part; E, T_4; F, T_5; G, genital papillae, anterior view; H, seta on coxa of leg 9; I, seta on trochanter of leg 9; J, tarsus of leg 9; K, tarsus of leg 8; L, pygidium, median and right part, tergal view; M, anal plate, lateral view. Scale a: Figures C, E–G; b: Figures A, H–K; c: Figures B, D, L, M.

bottom; width of *g* 0.9(–1.0) of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 29C, D): setae of collum segment (Figure 29C) simple, cylindrical, blunt, striate, sublateral ones 4.0(–4.3) times as long as submedian ones; sternite process small, narrow anteriorly; appendages barrel-shaped, caps small hemispherical, process faintly granular, appendages glabrous.

Setae on tergites cylindrical, blunt, annulate, 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Submedian posterior setae on VI (Figure 29D) 0.5(–0.6) of interdistance and 0.6(–0.8) of the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures 29E, F): relative lengths: T_1 = 100, T_2 = (96–)102(–110), T_3 = (104–)107(–108), T_4 = (108–)133, T_5 = (143–)156; T_1–T_4 polyramose (Figure 29E), even repeatedly branched, branches with distinct erect pubescence; T_5 with simple axes with distinct pubescence of simple, almost erect hairs (Figure 29F).

Genital papillae (Figure 29G): subcylindrical, rounded distally, glabrous, 1.7 times as long as greatest diameter, seta 0.3(–0.4) of the length of papilla.

Legs (Figures 29 H–J): seta on coxa (Figure 29H) and trochanter (Figure 29 I) of legs 1–9 simple, cylindrical, blunt, annulate. Tarsus of leg 9 (Figure 29J) weakly tapering, (2.5–)2.6(–2.7) times as long as its greatest diameter. Setae blunt, striate, proximal one cylindrical, distal one furcate on legs 1–8 (Figure 29K); proximal seta on leg 9, 0.3(–0.4) of the length of tarsus and (0.8–)0.9 of the length of distal seta. Cuticle of tarsus glabrous.

Pygidium (Figures 29L, M).

Tergum: posterior margin rounded but with small indentation between a_1. Relative lengths of setae: a_1 = 10, a_2 = (7–)8(–9), a_3 = (9–)10(–12), *st* = 6(–9); *a*-setae cylindrical blunt annulate, curved inward, *st* clavate striate, curved inward and converging. Distance a_1–a_1 (0.7–)0.8(–0.9) of the length of a_1; distance a_1–a_2 (1.5–)2.2 times as long as distance a_2–a_3; distance *st*–*st* (1.7–)2.1 times as long as *st* and (1.5–)1.9 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: Posterior margin between b_1 indented and with low rounded lobe below anal plate. Relative lengths of setae (pygidial a_1 = 10): b_1 = 24(–33), b_2 = (10–)11(–13); setae cylindrical blunt striate-annulate; b_1 1.1(-1.3) times as long as interdistance; b_2 (0.7-)0.9 of the distance b_1–b_2.

Anal plate (Figures 29L, M) glabrous linguiform, narrowest anteriorly, (1.0–)1.1 times as long as broad, lateral and posterior margins almost straight, posteriolateral corners rounded, four posterior, cylindrical appendages, two long ones protruding downward-backward from sternal side and two rudimentary ones protruding upward-backward from tergal side, the former curved outward and diverging, 0.8 of the length of plate.

ETYMOLOGY

From the Greek katernes = with luxuriant branches (referring to the bothriotricha T_1–T_4).

***Decapauropus multivirgatus* sp. nov.**

urn:lsid:zoobank.org:act:8EDC0B5F-232B-485B-93C4-632E39D0AB91

Figure 30A–L

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9 (□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 21 September 1981 (WAM T125541).

Paratypes

Australia: *Western Australia*: 1 ad. 9(□), same data as holotype (WAM T125542); 1 subad. 8(□), same data except 25 July 1980 (WAM T125543); 7 ad. 9(1□,6□), same data except 25 May 1981 (WAM T125544); 6 ad. 9(3□, 3□), 1 juv., 6, 2 juv. 3, same data except 27 May 1981 (WAM T125545); 1 ad. 9(□), same data except 25 July 1980 (WAM T125546); 1 ad. 9(□), 2 juv. 6, 1 juv. 3, same data except 15 October 1980 (WAM T125547); 1 ad. 9(□), same data except 27 October 1981 (WAM T125548).

Non-types

Australia: *Western Australia*: 1 ad. 9(□), 1 juv. 6, same data except in soil 18 July 1980; 2 ad. 9(□), 2 juv. 5, 6 juv. 3, same data except 18 August 1980; 1 juv. 6, same data except 20 September 1980; 1 juv. 6, same data except 24 October 1980; 3 juv. 6, same data except 11 December 1980; 1 ad. 9(□), same data except 18 March 1981; 1 ad. 9(□), same data except 25 March 1981; 1 ad. 9(□), same data except 15 April 1981; 2 ad. 9(□), same data except 18 April 1981; 2 ad. 9(□), same data except 19 May 1981; 1 juv. 3, same data except 25 July 1980; 2 ad. 9(□, □), same data except 21 September 1981; 1 juv. 3, same data except 22 September 1981.

DIAGNOSIS

D. multivirgatus has its closest relatives in the Madagascar-Réunion area, such as *D. pumilio* Remy from Réunion (Remy 1957a) and the two Madagascan *D. ankaratrensis* Remy and Bello (Remy and Bello 1960) and *D. dendrophorus* Remy (Remy 1956d). Because it is a slender and short-legged species it

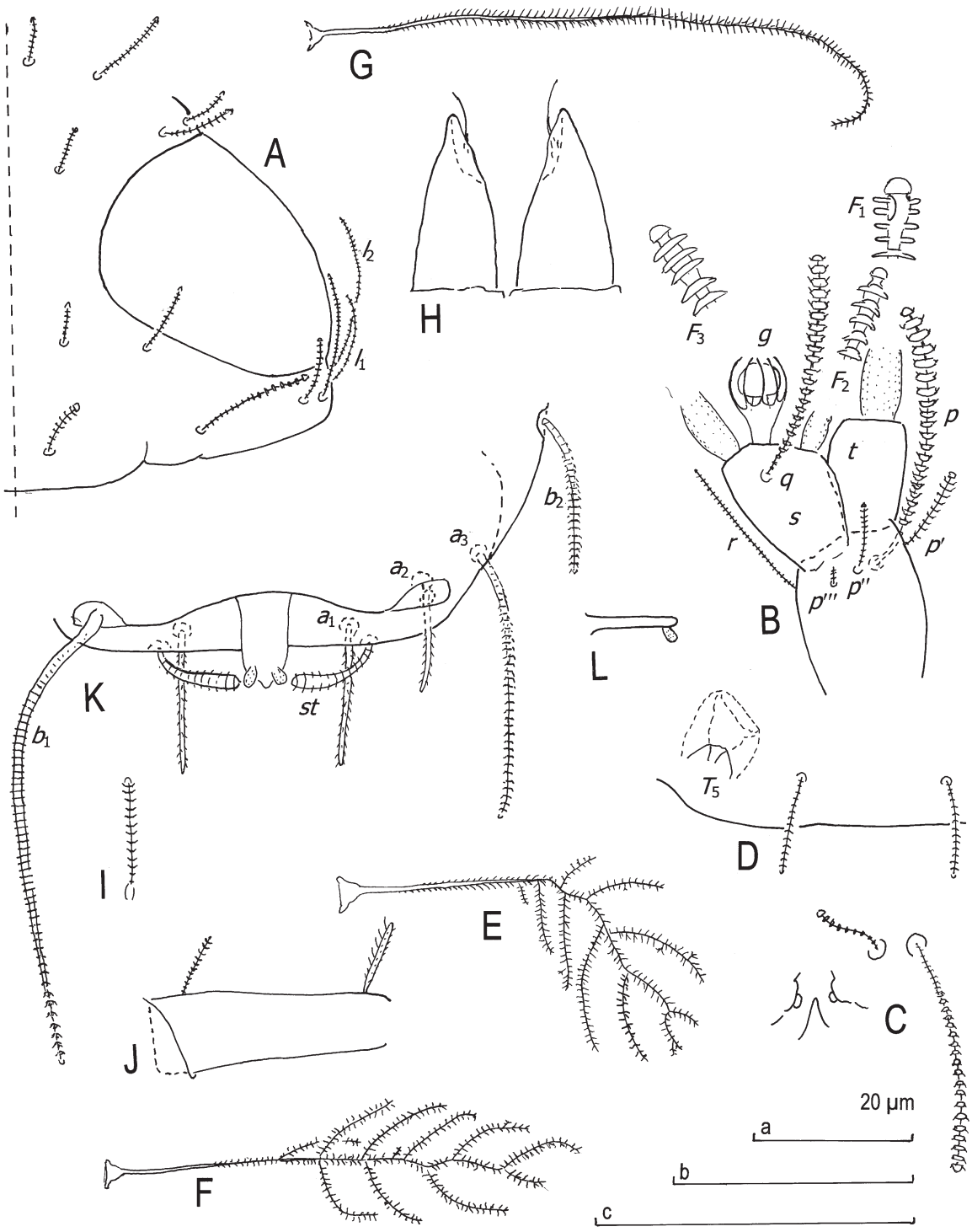

FIGURE 30 *Decapauropus multivirgatus* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, left antenna, sternal view; C, collum segment, median and left part, sternal view; D, tergite VI, posteriomedian part and left posteriolateral corner; E, T_1; F, T_3; G, T_5; H, genital papillae, anterior view; I, seta on trochanter of 9th pair of legs; J, tarsus of 9th pair of legs; K, pygidium, posteriomedian and left part, sternal view; L, anal plate, lateral view. Scale a: Figures C, E–H; b: Figures A, D, I, J; c: Figures B, K, L.

may be closest to *D. pumilio* but it differs, besides by small differences in the pygidial characters, by the shape of the tergal antennal branch, 1.6–1.9 times as long as the greatest diameter, not 1.3, the ratio *p/r*, *p* almost twice longer than *r*, not *p* ≈*r*, and by the shape of the bothriotricha T_1–T_4, many-branched, not simple. Good distinguishing characters in relation to *D. dendrophorus* are in the ramification of the bothriotricha T_1–T_4, branches proportionately short and bow-shaped, not almost straight with arboreal ramification, and in the shape of the anal plate, with parallel sides and thick clavate appendages, not wedge-shaped with thin cylindrical appendages. *Decapauropus ankaratrensis* may be a more remote relative and there are many good distinguishing characters in the head, antennae, bothriotricha and pygidium.

DESCRIPTION

Adult male holotype (and paratypes)

Length: (0.52–)0.54(–0.76) mm.

Head (Figure 30A): setae of short–medium length, cylindrical annulate blunt. Relative lengths of setae, 1st row: a_1 = 10, a_2 = 12(–16); 2nd row: a_1 = 10(–12), a_2 = (15–)16(–21), a_3 = 8(–12); 3rd row: a_1 = (8–)9(–12), a_2 = (15–)16(–18); 4th row: a_1 = (11–)12(–13), a_2 = (24–)26(–27), a_3 = (14–)15(–20), a_4 = 15(–27); lateral group setae: l_1 = (20–)26(–31), l_2 = (27–)32(–35), l_3 = 18(–34). The ratio a_1/a_1–a_1 in 1st row 0.7(–0.8), 2nd row (0.3–)0.4(–0.5), 3rd row 0.4(–0.6), 4th row 1.3(–1.6). Temporal organs ovoid in tergal view, 1.4(–1.7) times as long as shortest interdistance; small aperture near posterior margin. Head cuticle glabrous.

Antennae (Figure 30B): segment 4 with 5 blunt, annulate setae, *p* and *p'* somewhat clavate, the others cylindrical, *p'''* very short; their relative lengths: *p* = 10, *p'* = 3, *p''* = (2–)3, *r* = (5–)6. Tergal seta *p* (2.3–)2.4(–2.8) times as long as tergal branch *t*. The latter branch (1.6–)1.9 times as long as its greatest diameter and (0.8–)0.9 of the length of sternal branch *s*, that branch (1.4–)1.5(–1.6) times as long as its greatest diameter; anterodistal corner truncate. Seta *q* as seta *p* of 4th segment, (1.5–)1.7 times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = (8–)9; F_2 = (29–)31(–34), bs_2 = 4(–5); F_3 = (82–)84(–85), bs_3 = (7–)8. F_1 (5.8–)6.4(–7.1) times as long as *t*, F_2 and F_3 (1.6–)1.8 and (4.4–)4.8 times as long as *s* respectively. Distal calyces subhemispherical; distal part of flagella axes fusiformly widened below calyx in F_1, weakly widened in F_2 and F_3. Globulus *g* (1.4–)1.5(–1.6) times as long as wide with narrow stalk, 8 bracts, capsule somewhat flattened; width of *g* 0.6(–0.7) of greatest diameter of *t*. Antennae glabrous.

Trunk (Figure30 C, D): setae of collum segment (Figure 30C) simple, cylindrical, blunt, annulate, sublateral setae (2.2–)2.5(–3.2) times as long as submedian ones; sternite process very small, narrow anteriorly; appendages short with small caps, process and appendages glabrous.

Setae on tergites cylindrical, blunt, annulate; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 30D) (0.5–)0.6 of interdistance and about as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures 30E–G): relative lengths: T_1 = 100, T_2 = (102–)112(–114), T_3 = (91–)118, T_4 = (94–)114(–119), T_5 = 133(–155); axes thin, T_1–T_4 with branches, 9(–11) in T_1, T_2 and T_3, 10(–16) in T_4, most branches long, bow-shaped, a few ones short, straight (Figures 30 E, F), T_5 (Figure 30G) with simple axes; pubescence hairs on all bothriotricha distinct, simple, mostly erect.

Genital papillae (Figure 30H): longish, conical, glabrous, 1.7 times as long as greatest diameter, seta 0.4(–0.5) of the length of papilla.

Legs (Figure30 I, J): setae on coxa and trochanter (Figure 30 I) of legs 1–9 simple, blunt, annulate. Tarsus of leg 9 (Figure 30 J) weakly tapering, 2.7(–3.1) times as long as its greatest diameter. Setae cylindrical, blunt, annulate–striate, proximal one 0.3(–0.4) of the length of tarsus and 0.9(–1.0) of the length of distal seta. Cuticle of tarsus glabrous.

Pygidium (Figures 30 K, L).

Tergum: posterior margin behind a_1 straight. Relative lengths of setae: a_1 = 10, a_2 = (6–)8, a_3 = (16–)19(–21), *st* = (6–)8(–9); setae blunt, striate–annulate, a_1 and a_2 straight, a_3 and *st* curved inward, the latter also converging. Distance a_1–a_1 0.8 of the length of (– as long as) a_1; distance a_1–a_2 (1.7–)2.2(–2.5) times as long as distance a_2–a_3; distance *st*–*st* (1.9–)2.0(–2.2) times as long as *st* and (1.2–)1.3(–1.5) times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 indented shallowly. Relative lengths of setae (pygidial a_1 = 10): b_1 = (28–)32(–37), b_2 = (11–)13(–16); setae annulate–striate, b_2 curved inward; b_1 1.4(–1.7) times as long as interdistance; b_2 0.8 of the length of (– as long as) distance b_1–b_2.

Anal plate (Figures 30 K, L) broadest anteriorly, linguiform with almost parallel sides, posterior part broadly triangular with two short, clavate appendages protruding downward-backward from posterior part of sternal side, appendages diverging, granular, their length 0.2(–0.3) of the length of plate.

ETYMOLOGY

From the Latin poly = many, and virga = pliant, branch (referring to the branched bothriotricha T_1–T_4).

Decapauropus notius Remy, 1957

Figure 31A–E

Decapauropus notius Remy 1957b: 140, 141; Greenslade and Scheller 2002: 8, 9.

MATERIAL EXAMINED

Australia: ***Western Australia*:** 1 subad. 8(□), Dwellingup, Yarragil Brook site, in litter, 15 April 1981; 1 juv. 3, same data except in soil, 18 August 1980; 1 subad. 8(□), same data except 15 October 1980; 2 subad. 8(□, □), same data except 9 May 1981; 1 subad. 8(□), same data except 28 June 1981.

DISTRIBUTION

Western Australia, Gnangara and Dwellingup.

REMARKS

The material recorded from southern Argentina by Remy (1962b: 59–61) as *D.* cf. *notius* Remy belongs probably not to this species because of differences in some antennal characters, the shape of the pygidial tergum, the relative lengths of the setae b_1 and the divergent shape of the anal plate.

Remy's material from Gnangara upon which he described the species was restricted to a single adult specimen, probably not in the best condition because some identification characters were incompletely described or omitted (Remy 1957b). None of the specimens reported above is adult but since the adult and subadult stages generally are very alike some characters of value for identification and not shown in Remy's paper have been depicted in figure 31: the head, the collum segment, the tarsus of the last pair of legs, the bothriotricha T_3 and the genital papillae.

Head (Figure 31A): head broad with large temporal organs. Setae cylindrical, blunt, annulate. Temporal organs with large inner pistil in median part.

Collum segment (Figure 31B): setae subequal in length, weakly clavate, blunt, annulate, appendages subspherical, distinctly pubescent, caps small with collar, process narrow anteriorly.

Bothriotricha: axes of the same thickness in all bothriotricha, pubescence on distal halves branched, shortest on T_3 (Figure 31C) and T_5.

Legs: tarsus of leg 8 (Figure 31D) fusiform, 2.4 times as long as greatest diameter, setae cylindrical, blunt, annulate, proximal seta 0.3 of the length of tarsus and as long as distal seta.

Genital papillae: in stage subad. 8 (Figure 31E) well developed but without seta, conical, 1.4 times as long as the greatest width.

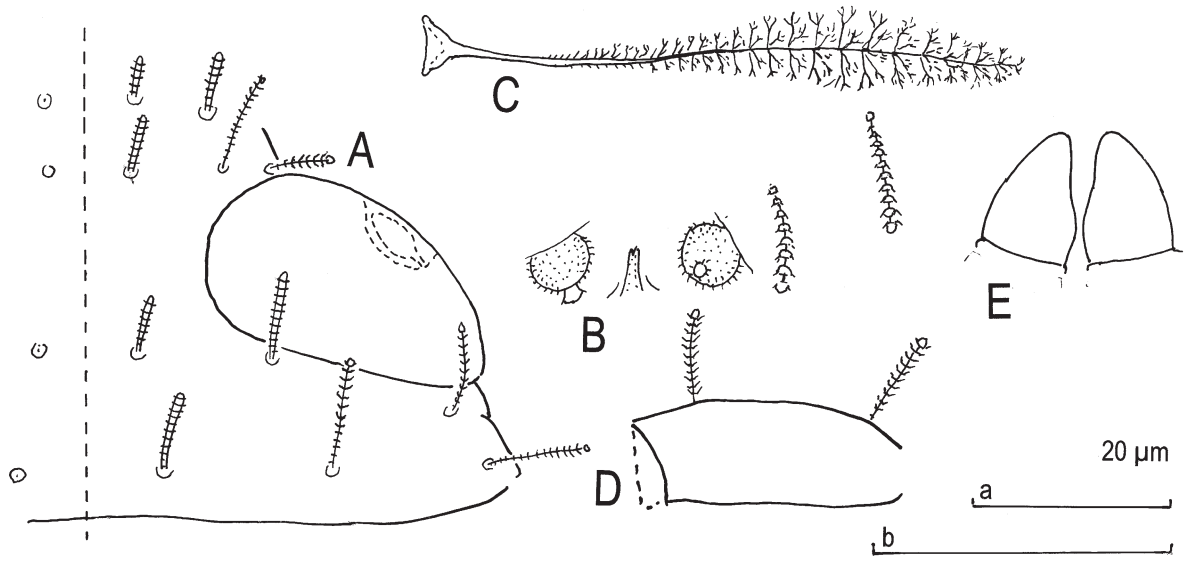

FIGURE 31 *Decapauropus notius* Remy, subad. 8: A, head, median and right part, tergal view; B, collum segment, median and left part; C, T_3; D, tarsus of leg 8; E, genital papillae, anterior view (setae not drawn). Scale a: Figures A, B, D; b: Figures C, E.

Decapauropus oviformis sp. nov.

urn:lsid:zoobank.org:act:D3420BD7-34D7-4293-A35A-C3D8A8D42C04

Figure 32A–K

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 27 May 1981 (WAM T125549).

DIAGNOSIS

There are several species in the genus with anal plates with two short posterior appendages but none with the character combination shown by *D. oviformis* sp. nov.: small posterior pistil in the temporal organs, proportionately large antennal globulus *g* with ovoid capsule, bothriotricha T_1–T_4 with thin axes without swellings but with long erect branched pubescence hairs and almost all setae annulate. The relationships cannot be traced.

DESCRIPTION

Adult female holotype

Length: 0.65 mm.

Head (Figure 32A): setae of short–medium length, cylindrical, annulate, blunt. Relative lengths of setae, 1st row: $a_1 = a_2 = 10$; 2nd row: $a_1 = 13$, $a_2 = 21$, $a_3 = 13$; 3rd row: $a_1 = 12$, $a_2 = 18$; 4th row: $a_1 = 16$, $a_2 = 24$, $a_3 = a_4 = 18$; lateral group setae: $l_1 = 31$, $l_2 = 22$, $l_3 = ?$. Ratio a_1/a_1–a_1 in 1st and 2nd rows 1.1, 3rd row 0.9, 4th row 1.0. Temporal organs small, ovoid in tergal view, 0.7 of the length of shortest interdistance; small pistil near posterior margin. Head cuticle glabrous.

Antennae (Figure 32B): segment 4 with 4 cylindrical, blunt, annulate setae, their relative lengths: $p = 10$, $p' = p'' = 3$, $r = 4$. Tergal seta *p* 3.0 times as long as tergal branch *t*. The latter widest in distal half, 1.4 times as long as its greatest diameter and 0.7 of the length of sternal branch *s*, that branch 1.4 times as long as its greatest diameter; anterodistal corner truncate. Seta *q* as seta *p* of 4th segment but somewhat thicker, 1.3 times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, $bs_1 = 9$; $F_2 = 38$, $bs_2 = 7$; $F_3 = 78$, $bs_3 = 9$. F_1 6.4 times as long as *t*, F_2 and F_3 1.8 and 3.7 times as long as *s* respectively. Distal calyces small, distal part of flagella axes fusiformly widened below calyces, F_3 thinner than F_1. Globulus *g* 1.4 times as long as wide, at least 8 bracts, capsule ovoid; width of *g* as long as greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 32C, D): setae of collum segment (Figure 32C) simple, cylindrical, blunt, annulate, sublateral setae 3.3 times as long as submedian setae; sternite process small, narrow anteriorly, with small incision; appendages barrel-shaped with flattened caps with collar, process and appendages glabrous.

Setae on tergites subcylindrical, blunt, annulate; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 32D) 0.4 of interdistance and 0.7 of the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures 32E, F): relative lengths: $T_1 = 100$, $T_2 = T_4 = 85$, $T_3 = 90$, $T_5 = 116$; axes simple, thin, thickest in T_3, pubescence of short, simple hairs on proximal ¼ of T_1–T_4 and whole the T_5, erect on the former, oblique on T_5. Distal ¾ of T_1–T_4 with long, ramose hairs, in sparse whorls on T_1 (Figure 32F), T_2 and T_4, in dense whorls and shorter on T_3 (Figure 32E).

Legs (Figures 32G–I): setae on coxa (Figure 32G) and trochanter (Figure 32H) of leg 9 cylindrical, blunt, annulate, those of coxa simple, those of trochanter furcate with subsimilar branches. Tarsus of leg 9 (Figure 32 I) tapering, 3.2 times as long as its greatest diameter. Setae cylindrical, blunt, annulate, proximal one 0.3 of the length of tarsus and 1.3 times as long as distal seta. Cuticle of tarsus glabrous.

Pygidium (Figures 32J, K): cuticle glabrous.

Tergum: posterior margin evenly rounded. Relative lengths of setae: $a_1 = 10$, $a_2 = st = 8$, $a_3 = 13$; *a*-setae subcylindrical, blunt, annulate, somewhat curved inward, a_2 thin converging, *st* cylindrical, almost glabrous, curved inward, converging. Distance a_1–a_1 1.2 times as long as a_1; distance a_1–a_2 4 times as long as distance a_2–a_3; distance *st*–*st* 2.1 times as long as *st* and 1.4 times as long as distance a_1–a_1.

Sternum: posterior margin between b_1 indented and with low lobe with median incision below base of anal plate. Relative lengths of setae (pygidial $a_1 = 10$): $b_1 = 32$, $b_2 = 15$; setae cylindrical, blunt, b_1 annulate–striate, b_2 annulate; b_1 1.2 times as long as interdistance; b_2 0.9 of the length of distance b_1–b_2.

Anal plate (Figures 32J, K) roundly rectangular, broadest in the middle, 1.5 times as long as broad, two short, thick, cylindrical, glabrous appendages protruding backward from sternal side of posteriolateral corners, length of appendages ¼ of the length of plate.

ETYMOLOGY

From the Latin ovum = egg and -formis = with the shape of (referring to the shape of the capsule of the antennal globulus *g*).

Decapauropus proximus Remy, 1948

Decapauropus proximus Remy 1948a: 572–573, figure 4.

MATERIAL EXAMINED

Australia: *Western Australia*: 1 subad. 8(□), c. 22 km SE of Dwellingup, Yarragil Brook site, in litter, 15 April 1981; 1 ad. 9(□), same data except in soil, 16 October 1980; 1 ad. 9(□), same data except 18 February 1981.

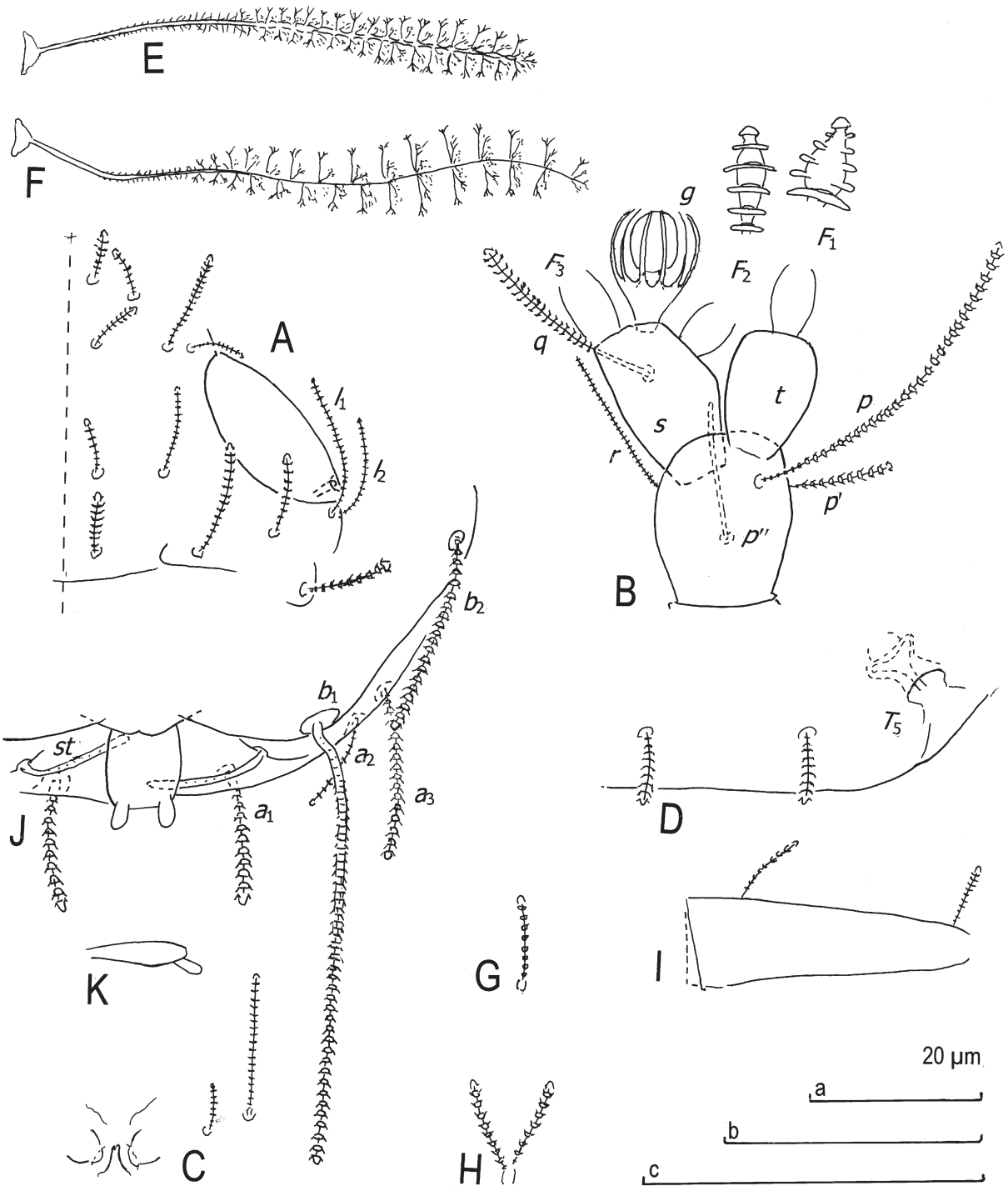

FIGURE 32 *Decapauropus oviformis* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, left antenna, tergal view; C, collum segment, median and left part, sternal view; D, tergite VI, posteriomedian part and left posteriolateral corner; E, T_1; F, T_3; G, seta on coxa of leg 9; H, seta on trochanter of leg 9; I, tarsus of leg 9; J, pygidium, posteriomedian and left part, sternal view; K, anal plate, lateral view. Scale a: Figures A, C, E, F; b: Figures D, G—I; c: Figures B J, K.

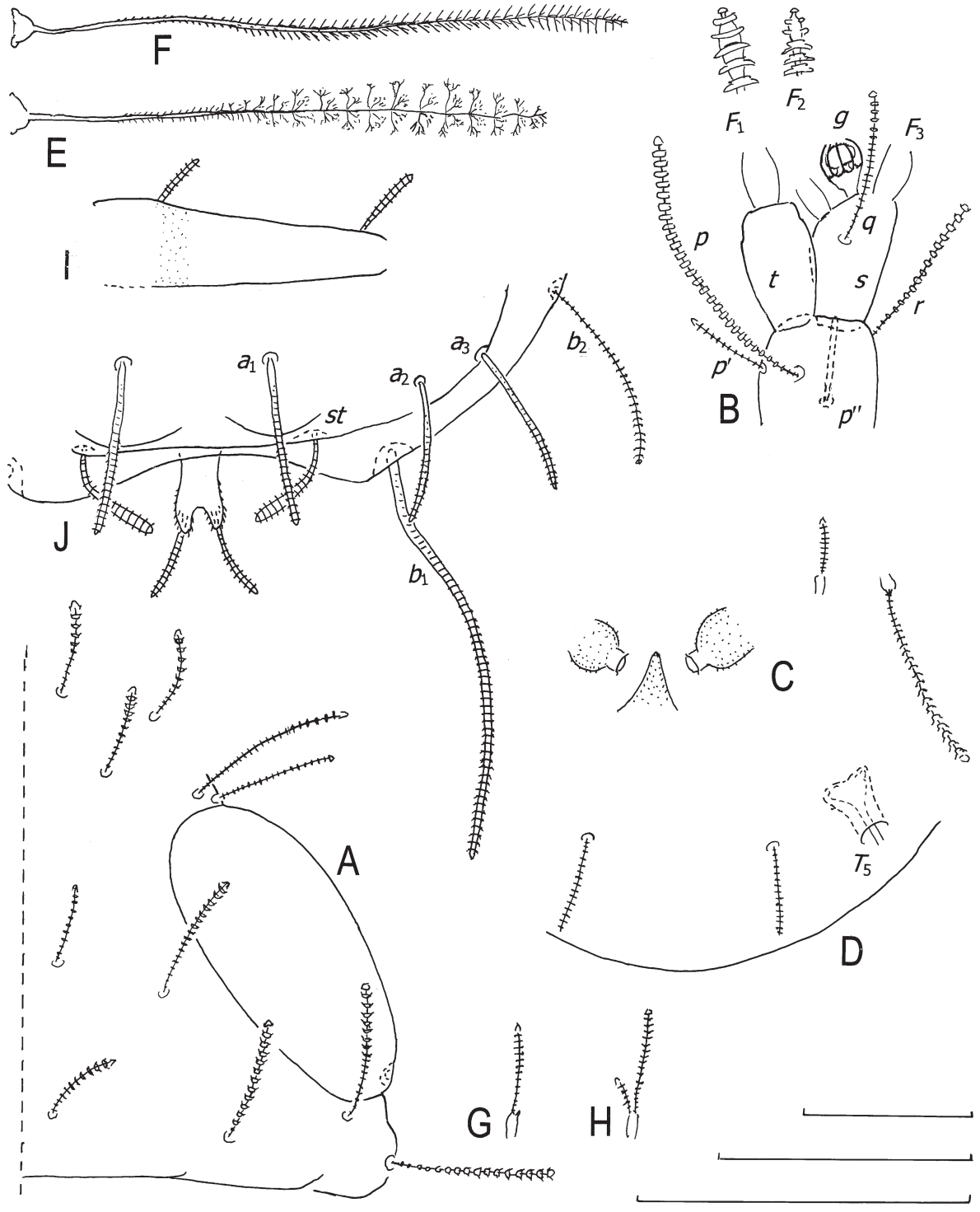

FIGURE 33 *Decapauropus ramulentus* sp. nov., holotype, adult □: A, head, median and right part, tergal view; B, right antenna, tergal view; C, collum segment, median and left part, sternal view; D, tergite VI, posteriomedian part and right posteriolateral corner; E, T_3; F, T_5; G, seta on coxa of 9th pair of legs; H, seta on trochanter of 9th pair of legs; I, tarsus of 9th pair of legs; J, pygidium, posteriomedian part. Pubescence only partly drawn in I. Scale a: Figures E, F: b: Figures A–C, G–I; c: Figure J.

DISTRIBUTION

Decapauropus proximus is here reported for the first time from Australia. It was previously known to have a wide and discontinuous distribution in the tropics and subtropics of America, Africa and Asia.

***Decapauropus ramulentus* sp. n.**

urn:lsid:zoobank.org:act:67AD2435-B019-490F-9BB2-3EAA09D41A8D

Figure 33A–J

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in litter, 21 July 1981 (WAM T125550).

Paratypes

Australia: *Western Australia*: 4 ad. 9(□), 1 subad, 8(□), 1 juv. 6, same data as holotype (WAM T125551).

Non-types

Australia: *Western Australia*: 1 ad.9(□), same data except in soil, 18 March 1981; 1 ad.9(□), same data except 23 June 1981; 1 ad. 9(□), 2 juv. 5, same data except 29 September 1981.

DIAGNOSIS

Decapauropus ramulentus may be closest to *D. ungulatus* described by Scheller from Tasmania (Scheller 2009b). The anal plates are very alike except the appendages, cylindrical in *D. ramulentus*, clavate in *D. ungulatus*. Other distinguishing characters are the shape of the appendages of the collum segment, caps on cylindrical neck, not flat and closely connected with the appendage, and the *st*, clavate, not cylindrical. Two more species which may be related are *D. forcipiformis* described above and *D. javanus* Scheller from Java (Scheller 2007b). However, the former has strongly shortened setae a_1 in the first row of the tergal head setae, not so in *D. javanus,* and in the latter species the T_3 have a distal swelling and the appendages of the anal plate are shortened, clavate, and the *st* are cylindrical.

DESCRIPTION

Adult female holotype (paratypes)

Length: (0.53–)0.61 mm.

Head (Figure 33A): setae of medium length, cylindrical, annulate, blunt. Relative lengths of setae, 1st row: a_1 = 10, a_2 = 11(–14); 2nd row: a_1 = 10, a_2 = 20(–26), a_3 = 14(–18); 3rd row: a_1 = 9(–13), a_2 = 14(–16); 4th row: a_1 = (9–)11, a_2 = (15–)16(–19), a_3 = 16(–20), a_4 = 19(–21); lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 0.9(–1.1), 2nd row 0.5(–0.6), 3rd row 1.0(–1.1), 4th row 1.2. Temporal organs large, ovoid in tergal view, (1.0–)1.1 times as long as shortest interdistance; small aperture in posterior part. Head cuticle glabrous.

Antennae (Figure 33B): segment 4 with 4 setae, all cylindrical blunt annulate; their relative lengths: p = 10, p' = p'' = 3(–4), r = 5(–6). Tergal seta p thickest, (2.2–)2.8 times as long as tergal branch t, p''' thinnest. t (1.5–)1.6 times as long as its greatest diameter and 0.8(–0.9) of the length of sternal branch s, that branch (1.7–)1.8 times as long as its greatest diameter, anterodistal corner truncate. Seta q cylindrical, blunt, annulate, 1.3(–1.8) times as long as s. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 8; F_2 = (31–)35(–40), bs_2 = (5–)6; F_3 = (78–)80(–86), bs_3 = (6–)7. F_1 (5.7–)6.0(–6.9) times as long as t, F_2 and F_3 1.8(–2.0) and (4.8–)5.0(–5.1) times as long as s respectively. Distal calyces small, somewhat flattened; distal part of flagella axes fusiformly widened below calyces. Globulus g 1.3(–1.5) times as long as wide with ≈10 bracts, capsule with flattened bottom; width of g (0.5–)0.6 of greatest diameter of t. Antennae glabrous.

Trunk (Figure 33C, D): setae of collum segment (Figure 33C) simple, cylindrical, blunt, annulate; sublateral setae (2.4–)2.8(–3.2) times as long as submedian setae; sternite process triangular, narrow anteriorly; appendages barrel-shaped with small caps and distinct neck, process and appendages faintly granular.

Setae on tergites as posterior setae of head; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 33D) 0.6(–0.7) of interdistance and 0.8(–0.9) of the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figure33E, F): relative lengths: T_1 = 100, T_2 = 97 and 100(–109), T_3 = (103–)108(–116) (Figure 33E), T_4 = 103(–120), T_5 = (124–)125(–141); axes simple, proximal 1/3 of T_1–T_4 and whole the T_5 (Figure 33F) with simple, oblique–erect pubescence hairs, distal 2/3 of T_5 with long, straight, oblique hairs, T_1–T_4 with long, branched hairs in whorls.

Legs (Figures 33G–I): setae coxa and trochanter of 9th pair (Figure 33G, H) furcate, cylindrical, annulate, blunt. Secondary branch rudimentary, glabrous on coxal seta, 1/3 of the length of primary branch on seta on trochanter. Corresponding setae on more anterior legs simple. Tarsus of leg 9 (Figure 33 I) tapering, (3.1–)3.3(–3.4) times as long as its greatest diameter; setae cylindrical, blunt, striate, proximal one 0.2(–0.3) of the length of tarsus and 0.8(–1.0) of the length of distal seta. Cuticle of tarsus faintly granular.

Pygidium (Figure 33J).

Tergum: posterior margin behind a_1 straight but with small lobes behind a_1. Relative lengths of setae: a_1 = 10, a_2 = (8–)9(–10), a_3 = 10(–13), st = 7(–9); setae striate, a-setae cylindrical blunt, st clavate, a_1 almost straight, somewhat diverging, a_2, a_3 and st curved inward, the latter also converging. Distance a_1–a_1 0.9(–1.1) times as

long as a_1; distance a_1–a_2 (2.0–)2.2(–2.4) times as long as distance a_2–a_3; distance *st*–*st* (1.8–)2.0 times as long as *st* and (1.3–)1.6 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with broad indentation. Relative lengths of setae (pygidial a_1 = 10): b_1 = 27(–35), b_2 = 12(–14); setae striate–annulate, b_2 curved inward and diverging; b_1 1.1(–1.2) times as long as interdistance; b_2 0.9(–1.0) of the length of distance b_1–b_2.

Anal plate (Figure 33J) 1.6(–2.0) times as long as broad with concave lateral margins, posterior margin with distinct median U(– roundly V-shaped) incision; two long diverging cylindrical appendages protruding backward from distal part of sternal side; their length 0.8 of the length of plate; posterior 1/3 of plate distinctly pubescent.

ETYMOLOGY

From the Latin ramulentus = with many branches (referring to the shape of the pubescence of the bothriotricha).

***Decapauropus ramusculus* sp. nov.**

urn:lsid:zoobank.org:act:9416DD8D-18A9-4419-93B0-534F2206D1B3

Figure 34A–J

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9 (□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in litter, 15 April 1981 (WAM T125552).

Paratypes

Australia: ***Western Australia*:** 5 ad. 9(□), 3 juv. 6, same data except in soil, 18 March 1981 (WAM T125553).

Non-types

Australia: ***Western Australia*:** 1 ad. 9(□), 2 subad. 8(□, □), same data except in litter, 21 July 1981; 4 ad. 9(2□, 2□), 1 juv. 6, same data except in soil, 18 July 1980; 1 ad. 9(□), 1 subad.8(□), same data except 18 August 1980; 1 ad. 9(□).1 subad. 8(□), same data except 14 September 1980; 1 subad.8(□), same data except 15 October 1980; 4 ad. 9(1□, 3□), 2 juv. 3, same data except 18 March 1981; 1 subad. 8(□), same data except 11 December 1980; 2 ad. 9(□), same data except 15 April 1981; 1 ad. 9(□), same data except 18 April 1981; 3 subad. 8(1□, 2□), 2 juv. 3, same data except 24 May 1981; 3 ad. 9(□), same data except 25 June 1981; 1 ad. 9(□), same data except 26 August 1981; 1 juv. 6, same data except 31 August 1981.

DIAGNOSIS

Decapauropus ramusculus sp. nov. may be closest to *D. thailandensis* Scheller from north-western Thailand (Scheller 1995). They have distinct similarities in the head, most pygidial setae and the anal plate. Good distinguishing characters are the shape of the tergal antennal branch, 1.3–1.6 times as long as its greatest diameter in *D. ramusculus*, 2.6 in *D. thailandensis*, and the shape of the bothriotricha T_3, with distal end-swelling and long branched pubescence, contrary to no end-swelling and short simple pubescence.

DESCRIPTION

Adult female holotype (and paratypes)

Length: (0.62–)0.65(–0.80) mm.

Head (Figure 34A): setae of medium length, cylindrical, annulate, blunt. Relative lengths of setae, 1st row: a_1 = 10, a_2 = 8(–12); 2nd row: a_1 = 8(–12), a_2 = 11(–14), a_3 = 10(–11); 3rd row: a_1 = 11(–15), a_2 = (14–)16(–21); 4th row: a_1 = 11(–15), a_2 = (13–)15(–20), a_3 = (14–)15(-20), a_4 = 15(–20); lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 0.9(–1.0), 2nd row (0.7–)0.8, 3rd row (0.8–)0.9(–1.1), 4th row (0.8–)0.9. Temporal organs ovoid in tergal view, 1.3(–1.5) times as long as shortest interdistance; small aperture in posterior part. Head cuticle glabrous.

Antennae (Figure 34B): segment 4 with five setae, all but p''' cylindrical, blunt, annulate–striate, p''' rudimentary; their relative lengths: p = 10, p' = (4–)5, p'' = 4, r = 4(–5). Tergal seta p (1.9–)2.3 times as long as tergal branch *t*. The latter short, 1.3(–1.6) times as long as its greatest diameter and 0.7(–0.8) of the length of sternal branch *s*, that branch (1.3–)1.5 times as long as its greatest diameter; anterodistal corner truncate. Seta *q* thickening distally, blunt, annulate, (1.1–)1.2(–1.3) times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 8(–9); F_2 = (31–)38, bs_2 = 4(–7); F_3 = 79(–90), bs_3 = 6(–8). F_1 (6.1–)6.7(–6.8) times as long as *t*, F_2 and F_3 1.7(–2.0) and (4.2–)4.3(–4.6) times as long as *s* respectively. Distal calyces subhemispherical; distal part of flagella axes fusiformly widened below calyces. Globulus *g* subspherical, 1.2(–1.3) times as long as wide, (7–)9 bracts, capsule spherical; width of *g* (0.8–)0.9 of greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 34C, D): setae of collum segment (Figure 34C) simple, somewhat clavate, blunt annulate; sublateral ones (3.0–)3.2(–3.5) times as long as submedian ones; sternite process small, narrow anteriorly; appendages barrel-shaped with flattened caps, process and appendages glabrous.

Setae on tergites as posterior setae of head; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 34D) 0.3(–0.4) of interdistance and (0.6–)0.7 of the length of pygidial setae a_1. Tergites with sparse very fine pubescence.

Bothriotricha (Figures34E, F): relative lengths: T_1 = 100, T_2≈95(–113), T_3 = 104(–111), T_4 = 104(–108), T_5 = (129–)136(–141); all with thin, simple axes; pubescence on proximal 1/3 of T_1–T_4 and on almost whole the T_5 of simple, oblique–erect hairs, distal 2/3 of T_1–T_4 and distal

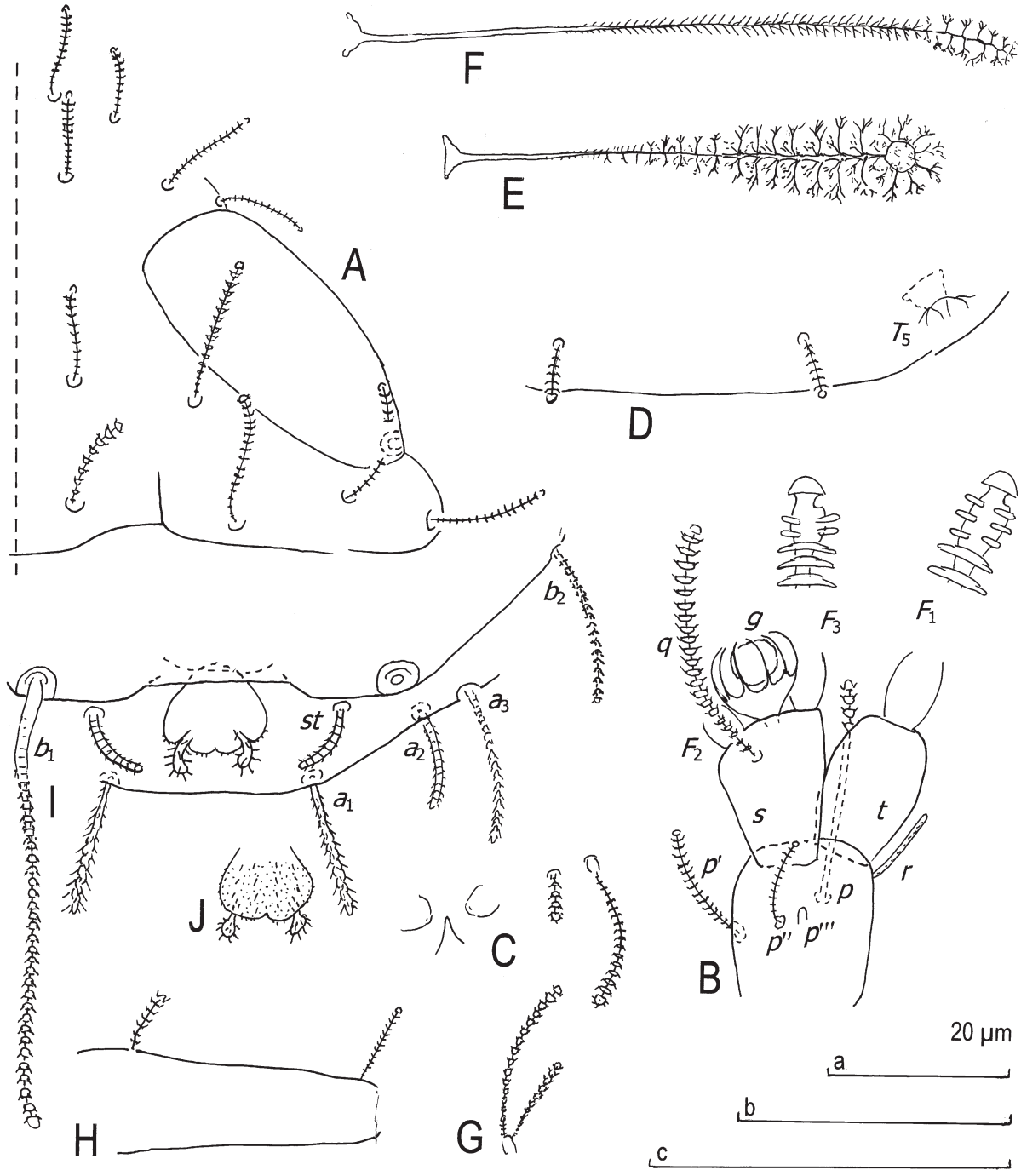

FIGURE 34 *Decapauropus ramusculus* sp. nov., holotype, ad.9(□): A, head, median and right part, tergal view; B, left antenna, sternal view; C, collum segment, median and left part, sternal view; D, tergite VI, posteriomedian part and right posteriolateral corner; E, T_3; F, T_5; G, seta on trochanter of leg 9; H, tarsus of leg 9; I, pygidium, posteriomedian and left part, sternal view; J, anal plate, tergal view. Scale a: Figures C–F; b: Figures A, G–J; c: Figure B.

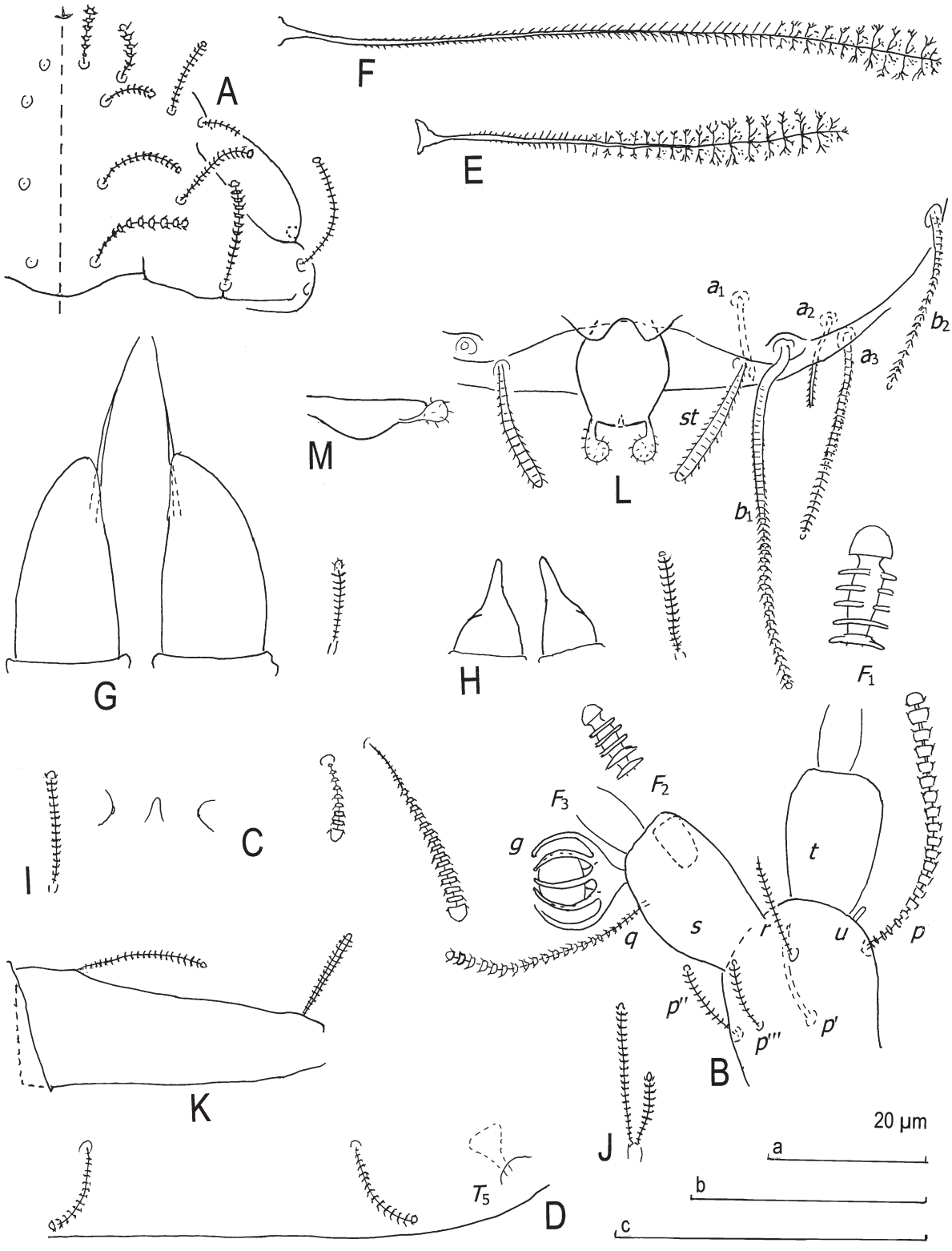

FIGURE 35 *Decapauropus rhopalotes* sp. nov. A–G, I–M holotype, ad. 9(□), H paratype subad. 8 (□): A, head, median and right part, tergal view; B, left antenna, posterior view; C, collum segment, median and left part, sternal view; D, tergite VI, posteriomedian part and right posterolateral corner, tergal view; E, T_3; F, T_5; G, genital papillae and seta on coxa of left leg 2, anterior view; H, genital papillae and seta on coxa of left leg 2 in subad. 8; I, seta on coxa of leg 9; J, seta on trochanter of 9th pair of legs; K, tarsus of leg 9; L, pygidium, posteriomedian part and left posterior corner, sternal view; M, anal plate, lateral view. Scale a: Figures A, D–J; b: Figures C, H, K–M; c: Figure B.

1/10 of T_5 (Figure 34F) with long, branched hairs in whorls; T_3 (Figure 34E) with ovoid end-swelling covered with long, branched pubescence.

Genital papillae (paratype): roundly conical, glabrous, 1.7 times as long as greatest diameter, seta 0.8 of the length of papilla.

Legs (Figures 34G, H): setae on coxa and trochanter (Figure 34G) of leg 9 furcate, branches cylindrical, blunt, annulate, secondary branch about half of the length of primary branch. Corresponding setae on more anterior legs simple. Tarsus of leg 9 (Figure 34H) tapering, 2.8(–2.9) times as long as its greatest diameter. Setae subcylindrical, blunt, annulate–striate, proximal one 0.2 of the length of tarsus and 0.8 of the length of distal seta. Cuticle of tarsus glabrous.

Pygidium (Figures 34 I, J).

Tergum: posterior margin rounded. Relative lengths of setae: a_1 = 10, a_2 = (6–)8(–9), a_3 = (12–)13(–19), *st* = 8; setae cylindrical, blunt, striate–annulate, a_1 straight, diverging, a_2, a_3 and *st* curved inward, the latter also converging. Distance a_1–a_1 (1.2–)1.4(–2.3) times as long as a_1; distance a_1–a_2 (2.1–)2.3(–2.6) times as long as distance a_2–a_3; distance *st*–*st* (2.3–)3.0 times as long as *st* and (1.1–)1.2(–1.4) times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with shallow indentation. Relative lengths of setae (pygidial a_1 = 10): b_1 = (32–)33(–42), b_2 = (11–)12(–17); setae annulate–striate, b_2 curved inward; b_1 1.2(–1.4) times as long as interdistance; b_2 0.8(–1.0) of the length of distance b_1–b_2.

Anal plate (Figures 34 I, J) narrowest anteriorly, heart-shaped (– or with rounded posterior margin) with pubescence in a few longitudinal rows on tergal side and with two posterior appendages protruding backward from posterior part of sternal side, appendages (cylindrical –) clavate, somewhat diverging and curved inward, sparsely pubescent, their length (0.3–) 0.4 of the length of plate.

ETYMOLOGY

From the Latin ramus, branch, dim. ramusculus (referring to the branched pubescence on bothriotricha T_5).

***Decapauropus rhopalotes* sp. nov.**

urn:lsid:zoobank.org:act:966EA5B1-3A5A-40F6-B4CD-5A16F24628B7

Figures 35A–M

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in litter, 15 April 1981 (WAM T125554).

Paratypes

Australia: *Western Australia*: 4 ad. 9(2□, 2□), same data as holotype (WAM T 125555); 2 ad. 9(□, sex?), same data as holotype except 18 April 1981 (WAM T125556).

Non-types

Australia: *Western Australia*: 6 ad. 9(1□,5□), 1 juv. 6, same data except, in litter, 15 April 1981; 3 ad. 9(2□, 1□), same data except 19 May 1981; 1 ad. 9(□), same data except 28 May 1981; 1 ad. 10(□), same data except 22 June 1981; 1 ad. 9(□), same data except 19 May 1981; 1 juv. 3, same data except 21 July 1981; 1 ad.9(□), 1 subad. 8(□), 1 juv. 5, 4 juv. 3, same data except in soil, 18 July 1980; 2 ad. 9(□), 3 juv. 3, same data except 18 August 1980; 1 juv. 6, 2 juv. 5, 2 juv. 3, same data except 20 September 1980; 1 subad. 8(□), 1 juv. 6, same data except 16 October 1980; 2 ad. 9(□), 4 juv. 6, 1 juv. 5, same data except 12 January 1981; 8 ad. 9(2□,6□), 3 juv. 6, 1 juv. 3, same data except 18 March 1981; 1 ad. 9(□), same data except 21 April 1981; 11 ad. 9(1□,9□), 5 juv. 6, 2 juv. 3, same data except 19 May 1981; 13 ad. 9(5□,8□), 3 subad. 8(□), 1 juv. 6, 1 juv. 5, 1 juv. 3, Murray River site, 27 May 1981; 3 ad. 10, 1 ad.9(□), Yarragil Brook site, 22 June 1981; 1 juv. 6, 2 juv. 5, Murray River site, 23 June 1981; 1 ad.10(□), Yarragil Brook site, 28 June 1981; 1 ad.9(□), 3 juv. 3, same data except 26 August 1981; 1 juv. 6, 1 juv. 3, same data except 21 September 1981; 2 ad. 9(□), 1 juv. 5, same data except 22 September 1981; 1 juv. 6, 2 juv. 3, same data except 29 September 1981.

DIAGNOSIS

The anal plate (Figures 35L, M) shows a combination of characters not found in any species of the genus. Together with the type of pubescence on the last pair of bothriotricha and the shape of the sternal lobe below the anal plate these characters make *D. rhopalotes* not only well delimitated in relation to other species of the genus but as far as known also without close relatives.

DESCRIPTION

Adult holotype (and paratypes)

Length: (0.70–)0.91(–0.93) mm.

Head (Figure 35A): head short, setae of medium length, cylindrical, blunt, annulate. Relative lengths of setae, 1st row: a_1 = 10, a_2 = (9–)10(–11); 2nd row: a_1 = 9(–10), a_2 = 14(–17), a_3 = (6–)7; 3rd row: a_1 = (14–)17(–18), a_2 = 17(–19); 4th row: a_1 = 14(–19), a_2 = 19(–21), a_3 = 21(–28), a_4 = ?(10–12); lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row (1.1–)1.4, 2nd row 0.6, 3rd row (1.0–)1.2(–1.4), 4th row (1.4–)1.9. Temporal organs in tergal view small, narrow, 0.7(–0.8) of shortest interdistance; small spherical pistil most posteriorly. Head cuticle glabrous.

Antennae (Figure 35B): segment 4 with 6 setae, *p* somewhat clavate, *p*–*r* cylindrical, blunt, *r* thin, pointed, *u* short, glabrous; their relative lengths: *p* = 10, *p′* =

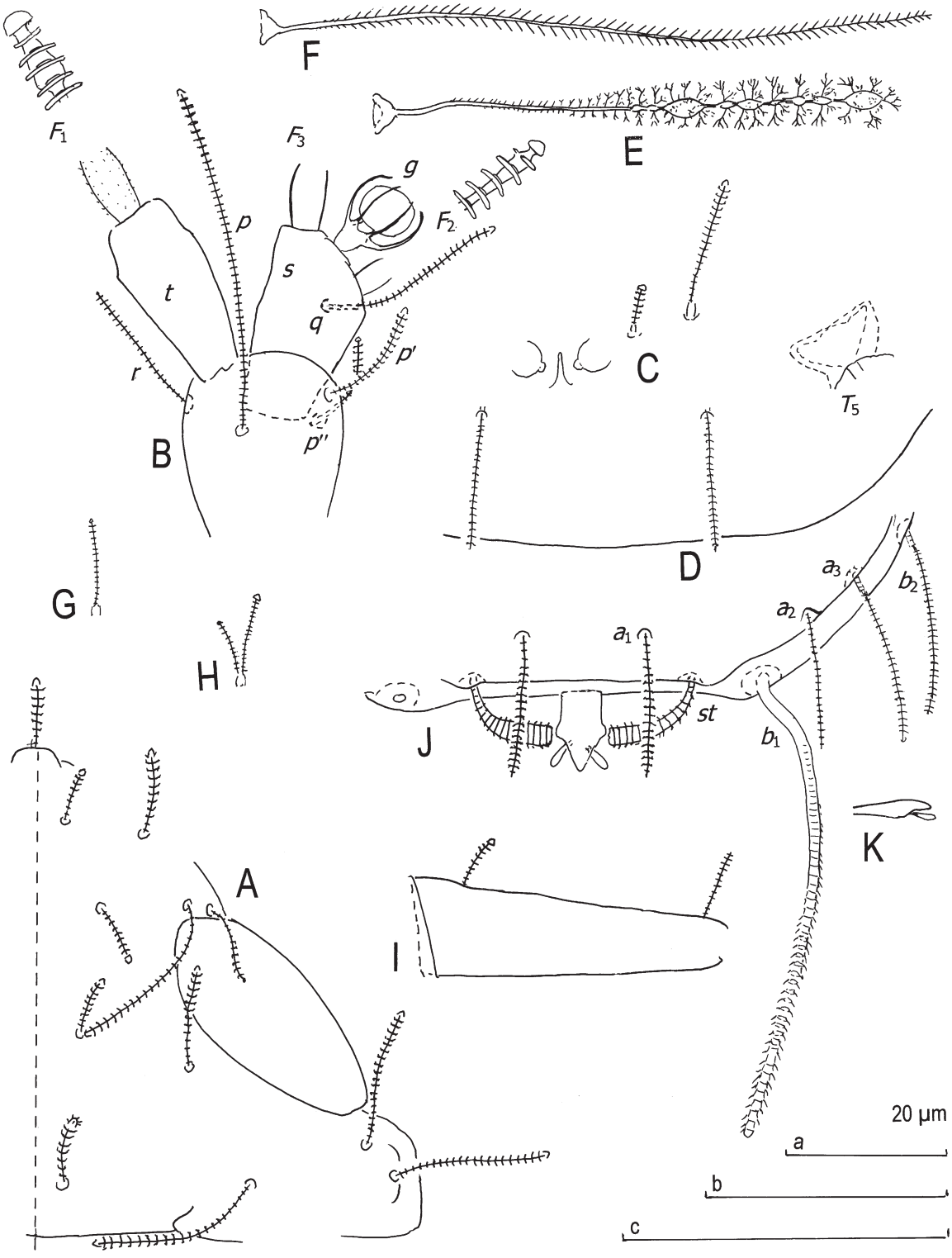

FIGURE 36 *Decapauropus sagitta* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, left antenna, tergal view; C, collum segment, median and left part, sternal view; D, tergite VI, posteriomedian part and right posterior corner; E, T_3; F, T_5; G, seta on coxa of leg 9; H, seta on trochanter of leg 9; I, tarsus of leg 9; J, pygidium, median and right posterior part, tergal view; K, anal plate, lateral view. Scale a: Figures C, E, F, J, K; b: Figures A, G–I; c: Figures B, D.

(3–)4(–5), p'' = 4(–5), p''' = (1–)2, r = (3–)4(–5), u = 1(–rudimentary). Tergal seta p (1.7–)2.0(–2.2) times as long as tergal branch t. The latter branch 1.4(–1.7) times as long as its greatest diameter and 0.8(–0.9) of the length of sternal branch s, that branch 1.4(–1.5) times as long as its greatest diameter; anterodistal corner truncate. Seta q as p of 4th segment but much thinner, 1.3(–1.4) times as long as s. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 7(–8); F_2 = (30–)33(–38), bs_2 = 5; F_3 = ?(80–89), bs_3 = 7(–8). F_1 (6.1–)7.0(–7.1) times as long as t, F_2 and F_3 (1.7–)1.9(–2.3) and ?(4.8–6.0) times as long as s respectively. Distal calyces helmet-shaped; distal part of flagella axes inconsiderably widened below calyces. Globulus g subspherical, 1.2(–1.3) times as long as wide, (8–)10 bracts; width of g 0.8(–0.9) of greatest diameter of t. Antennae glabrous.

Trunk (Figures35C, D): setae of collum segment (Figure 35C) simple, somewhat clavate, annulate; sublateral ones (2.1–)2.4(–2.5) times as long as submedian ones; sternite process small, narrow anteriorly; appendages small, low, with flattened indistinct caps; process and appendages glabrous.

Setae on tergites blunt, annulate, lengthening posteriorly; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 35D) 0.5(–0.6) of interdistance and (1.5–)1.8 times as long as pygidial setae a_1. Anterior tergites faintly granular.

Bothriotricha (Figures 35E, F): relative lengths: T_1 = 100, T_2 = (84–)85(–114), T_3 = (80–)83(–108) (Figure 35E), T_4 = (109–)115(–132), T_5 = (121–)131(–134) (Figure 35F); all with thin simple axes and proximal 1/3, on T_5 3/4, with simple oblique pubescence hairs, outward with long branched hairs in whorls.

Genital papillae (Figures 35G, H): in ad. 9 (Figure 35G) (1.8–)1.9 times as long as greatest diameter subconical, inner margin almost straight, outer side rounded, seta (0.6–)0.9 of the length of papilla. In subad. 8 (Figure 35H) conical, extended distally, no setae.

Legs (Figures 35 I–K): setae of upper segments annulate, blunt, the one on coxa simple (Figure 35 I), the one on trochanter furcate (Figure 35J) with secondary branch 0.5 of the length of primary branch. Corresponding setae on more anterior legs simple, seta on coxa in male not deviating. Tarsus of leg 9 (Figure 35K) tapering, 2.7(–3.0) times as long as greatest diameter. Setae subcylindrical, blunt, annulate–striate, proximal one (0.3–)0.4 of the length of tarsus and (1.2–)1.4(–1.5) times as long as distal seta. Cuticle of tarsus glabrous.

Pygidium (Figures 35L, M).

Tergum: posterior margin evenly rounded. Relative lengths of setae: a_1 = 10, a_2 = (9–)10(–14), a_3 = (17–)24(–27), st = (11–)14(–21); a-setae almost straight, blunt, striate–annulate, a_1 somewhat diverging, a_3 somewhat curved inward and converging, st thickened, clavate, distinctly pubescent, converging. Distance a_1–a_1 (1.9–)2.5(–2.7) times as long as a_1; distance a_1–a_2 (1.9–)2.5(–2.8) times as long as distance a_2–a_3; distance st–st (1.7–)1.9(–2.1) times as long as st and as long as (–1.2) times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with broad rounded indentation and two lobes in the shape of rounded triangles just below anal plate. Relative lengths of setae (pygidial a_1 = 10): b_1 = (37–)38(–52), b_2 = (17–)19(–23). Setae striate–annulate, blunt, b_2 curved inward, converging; b_1 1.1(–1.5) times as long as interdistance; b_2 as long as (–1.1 times as long as) distance b_1–b_2.

Anal plate (Figure 35L, M) large, faintly granular, a little longer than broad, broadest just anterior of the middle, lateral and posterior margins convex, two clavate appendages with erect pubescence protruding backward from posterolateral corners, length of appendages 0.3(–0.4) of the length of plate.

ETYMOLOGY

From the Greek rhopalon = club (referring to the shape of the appendages of the anal plate).

***Decapauropus sagitta* sp. nov.**

urn:lsid:zoobank.org:act:5679315B-9D39-48E7-82C0-9B05F4156A3B

Figure 36A–K

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 19 May 1981 (WAM T125557).

DIAGNOSIS

Decapauropus sagitta sp. nov. is very close to *D. sphen* described below. Good distinguishing characters are the shape of the proximal seta on the tarsus of the last pair of legs, subclavate and shorter than the length of the distal seta in *D. sagitta*, thin cylindrical and at least as long as the distal seta in *D. sphen*, the surface structure of the *st*, distinctly striate, not faintly granular, the pubescence of the bothriotricha T_5, simple hairs inserted irregularly, not ramose hairs arranged in whorls, and the shape of the anal plate, broadest in posterior half and lateral margins of anterior half parallel, not broadest anteriorly and lateral margins concave and converging.

DESCRIPTION

Length: 0.45 mm.

Head (Figure 36A): setae short–medium length, subcylindrical, blunt, annulate. Relative lengths of setae, 1st row: a_1 = 10, a_2 = 16; 2nd row: a_1 = 11, a_2 = 33, a_3 = 14; 3rd row: a_1 = 11, a_2 = 19; 4th row: a_1 = 12, a_2 = 33, a_3 = 27, a_4 = 29; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st and 4th rows 0.9, 2nd row 0.5, 3rd row 0.6. Temporal organs ovoid in tergal view, length 0.8 of the length of

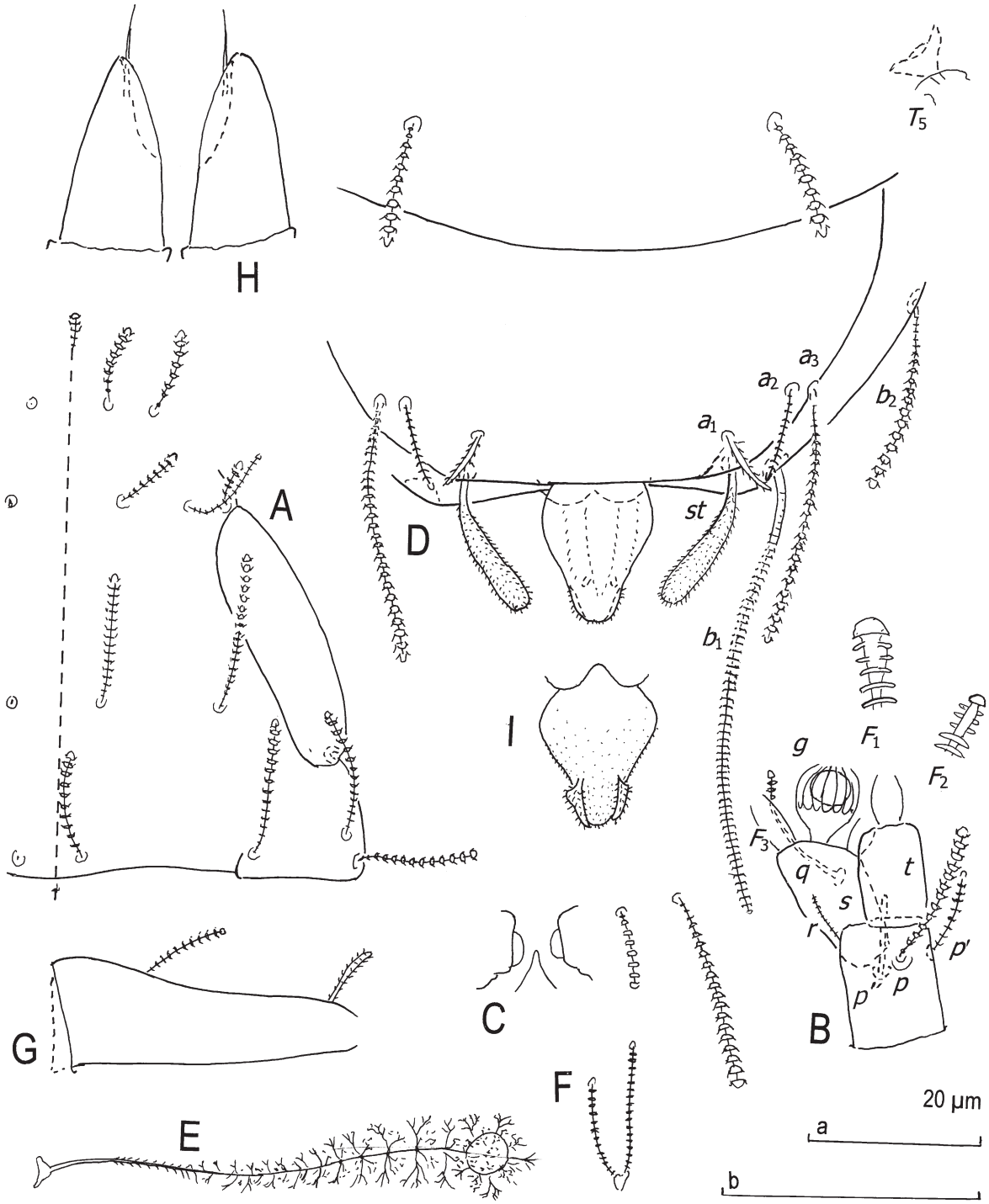

FIGURE 37 *Decapauropus serpentis* sp. nov., A–D, F–I holotype, ad. 9(□), E paratype ad. 9(□): A, head, median and right part, tergal view; B, left antenna, tergal view; C, collum segment, median and left part, sternal view; D, T_3; E, genital papillae, anterior view; F, seta on trochanter of leg 9; G, tarsus of leg 9; H, pygidium and posterior part of tergite VI, tergal view; I, anal plate, sternal view. Scale a: Figures D–F; b: Figures A–C, G–I.

shortest interdistance; pistil absent, posterior pore not ascertained. Head cuticle glabrous.

Antennae (Figure 36B): segment 4 with 4 cylindrical, annulate setae; their relative lengths: $p = 10$, $p' = p'' = 3$, $r = 4$. Tergal seta *p* 2.0 times as long as tergal branch *t*. The latter branch fusiform, 2.0 times as long as its greatest diameter and almost as long as the length of sternal branch *s*, that branch 1.6 times as long as its greatest diameter; anterodistal corner truncate. Seta *q* as *p′* of 4th segment, 1.4 times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, $bs_1 = 8$; $F_2 = 34$, $bs_2 = 5$; $F_3 = 86$, $bs_3 = 7$. F_1 5.1 times as long as *t*, F_2 and F_3 1.7 and 4.2 times as long as *s* respectively. Distal calyces hemispherical; distal part of flagella axes widened below calyces, on F_1 and F_3 conically, on F_2 similar to an inverted cone. Globulus *g* almost spherical, 1.1 times as long as wide, ≈8 bracts, capsule subspherical; width of *g* 0.9 of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figure 36C, D): setae of collum segment (Figure 38C) thin simple subcylindrical, blunt, annulate; sublateral setae 2.8 times as long as submedian setae; sternite process small, pointed anteriorly; appendages subcylindrical, with small, thick caps; process and appendages glabrous.

Setae on tergites as setae on head; 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Submedian posterior setae on VI (Figure 36D) 0.6 of interdistance and as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures36E, F): relative lengths: $T_1 = 100$, $T_2 = 103$, $T_3 = 106$, $T_4 = 48$, $T_5 = 97$; axes simple, on T_3 with nodes of different size in distal half and with end-swelling; pubescence proximally and on whole the T_5 (Figure 36E) of simple straight hairs, on main part of T_1–T_4 longer, ramose hairs in whorls.

Legs (Figures 36G, H): setae on coxa (Figure 36G) and trochanter (Figure 36H) of leg 9 thin, annulate, blunt, seta on coxa simple, seta on trochanter furcate with secondary branch shorter than primary branch. Tarsus of leg 9 (Figure 36 I) tapering, 2.8 times as long as its greatest diameter. Setae blunt, proximal one subclavate, distal one subcylindrical, densely annulate, proximal seta 0.2 of the length of tarsus and 0.8 of the length of distal seta. Cuticle of tarsus glabrous.

*Genital papilla*e: widest at base, conical, 1.8 times as long as greatest width, seta 0.5 of the length of papilla.

Pygidium (Figures 36J, K).

Tergum: posterior margin between *st* straight. Relative lengths of setae: $a_1 = 10$, $a_2 = 9$ and 10, $a_3 = 12$, $st = 9$; *a*-setae cylindrical, blunt, striate–annulate, a_2 and a_3 somewhat curved inward and diverging, *st* strongly clavate, cut squarely distally, striate. Distance a_1–a_1 0.8 of the length of a_1; distance a_1–a_2 2.6 times as long as distance a_2–a_3; distance *st*–*st* 1.6 times as long as *st* and 1.7 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with broad shallow indentation. Relative lengths of setae (pygidial $a_1 = 10$): $b_1 = 33$, $b_2 = 13$; setae cylindrical, b_1 striate–annulate, b_2 striate, curved inward; b_1 1.3 times as long as interdistance; b_2 as long as distance b_1–b_2.

Anal plate (Figures36J, K) wedge-shaped, 1.8 times as long as broad, broadest just outside the middle at posterolateral corners, lateral margins of anterior half with parallel margins, posterior part of plate elongated into an equilateral triangle, two clavate glabrous diverging appendages protruding backward from distal part of sternal side, length of appendages 0.4 of the length of plate. Plate glabrous.

ETYMOLOGY

A noun from the Latin sagitta = arrow (referring to the shape of the anal plate).

Decapauropus saltuarius Scheller, 2009

Decapauropus saltuarius Scheller 2009b: 303–305, figures 72–81.

Allopauropus (Decapauropus) sp. 7: Greenslade 2008: 157, 159.

DISTRIBUTION

Tasmania, in the northwest: Cradle Mountain; in the southeast: Mt Mangana on Bruny Island. Not known outside Australia.

Decapauropus serpentis sp. nov.

urn:lsid:zoobank.org:act:A669F799-A6B4-4157-BCA4-96346196ECFE

Figure 37A–I

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 24 October 1980 (WAM T 125558).

Paratypes

Australia: ***Western Australia*:** 13 ad. 9(3□, 10□), c. 22 km SE. of Dwellingup, Yarragil Brook site, 19 May 1981 (WAM T125559).

Non-types

Australia: *Western Australia*: 2 ad. 9(□), Murray River site, in soil, 25 July 1980; 2 ad. 9(□, □), 3 juv. 3, Yarragil Brook site, 18 August 1980; 2 subad. 8(□, □), 3 juv. 3, same data except 14 September 1980; 1 ad. 9(□), 1 juv. 6, same data except 19 May 1981; 2 ad. 9(□,□), Murray River site, 27 May 1981; 3 ad. 9(1□,2□), 1 juv. 6, 1 juv. 3, Yarragil Brook site, 23 June 1981; 1 ad. 9(□), Murray River site, 29 June 1981; 1 ad. 9(□), same data except 25 August 1981.

DIAGNOSIS

In many characters *D. serpentis* is close to *D. lustrivagus* Remy from Madagascar (1956d) but is easily distinguished from it by the length of the pygidial *a*-setae, a_1 and a_2 much shorter than half of the a_3 in *D. serpentis,*

almost as long as the a_3 in *D. lustrivagus*, and the shape of the *st*, twice longer than a_1 and strongly clavate, not as long as a_1 and almost cylindrical, and also by the shape of the anal plate, rounded distally with clavate appendages, not triangular distally with subcylindrical appendages.

DESCRIPTION

Adult female (and paratypes)

Length: (0.51–)0.69(–0.72) mm.

Head (Figure 37A): longish, setae of medium length, cylindrical, blunt, annulate. Relative lengths of setae, 1st row: a_1 = 10, a_2 = (10–)11(–12); 2nd row: a_1 = (8–)9(–11), a_2 = (14–)17, a_3 = 8(–12); 3rd row: a_1 = (14–)17(-19), a_2 = (18–)20(–24); 4throw: a_1 = 15(–20), a_2 = 18(–26), a_3 = (15–)17(–22), a_4 = (15–)17(–20); lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 1.0(–1.3), 2nd row 0.6, 3rd row (1.2–)1.4, 4th row (1.3–)2.0. Temporal organs narrow in tergal view, (0.8–)0.9 of shortest interdistance; small aperture in posterior part. Head cuticle glabrous.

Antennae (Figure 37B): segment 4 with 4 blunt, annulate–striate setae, *p* subcylindrical, thickest in distal half, other setae cylindrical, *r* thin; their relative lengths: *p* = 10, *p′* = (4–)6(–7), *p″* = (4–)5, *r* = (3–)4. Tergal seta *p* 1.5(–1.9) times as long as tergal branch *t*. The latter branch short (1.3–)1.4(–1.6) times as long as its greatest diameter and 0.7(–0.8) of the length of sternal branch *s*, that branch 1.4(–1.8) times as long as its greatest diameter; anterodistal corner truncate. Seta *q* cylindrical, blunt, annulate, as long as (–1.3) times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = (7–)9; F_2 = (35–)37, bs_2 = (5–)7; F_3 = (85–)93, bs_3 = (8–)9(–10). F_1 6.2(–6.5) times as long as *t*, F_2 and F_3 1.5(–1.9) and 3.5(–4.5) times as long as *s* respectively. Distal calyces hemispherical; distal part of flagella axes unsymmetrically widened below calyces. Globulus *g* almost spherical, 1.2(–1.3) times as long as wide, (8–)10 bracts, capsule spherical; width of *g* (0.8–)0.9 of greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 37C, D): setae of collum segment (Figure 36C) simple, somewhat clavate, annulate, blunt; sublateral setae (2.3–)2.5(–2.8) times as long as submedian setae; sternite process small, narrow anteriorly; appendages low with flattened caps, process and appendages glabrous.

Setae on tergites as posterior setae of head; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 37D) (0.3–)0.4 of interdistance and (1.6–)1.8 times as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figure 37E): relative lengths: T_1 = 100, T_2 = (97–)102(–110), T_3 = (86–)89(–96), T_4 = (82–)84(–88), T_5 = (95–)98(–112); axes thin simple, proximal 1/3, on T_5 proximal half, with simple oblique pubescence hairs, outward with long branched hairs in whorls; T_3 (Figure 36E) with round end-swelling covered with long branched pubescence.

Genital papillae (Figure 37H): narrowly conical, glabrous, 1.8(–1.9) times as long as greatest diameter, seta 0.4 of the length of papilla.

Legs (Figures 37F, G): setae on coxa and trochanter cylindrical, blunt, annulate, seta on coxa simple, seta on trochanter (Figure 37F) furcate. Corresponding setae on more anterior legs simple. Tarsus of leg 9 (Figure 37G) tapering, (2.5–)2.7(–2.8) times as long as its greatest diameter. Setae subcylindrical, blunt, annulate–striate, proximal seta 0.3(–0.4) of the length of tarsus and (1.0–)1.4(–1.6) times as long as distal seta. Cuticle of tarsus glabrous.

Pygidium (Figures 36D, I).

Tergum: posterior margin behind a_1 straight. Relative lengths of setae: a_1 = 10, a_2 = (10–)13(–14), a_3 = (24–)36(–38), *st* = (18–)21; *a*-setae almost straight, annulate, blunt, a_1 diverging, a_2 and a_3 somewhat curved inward, *st* strongly enlarged in distal 2/3, clavate, densely pubescent, curved inward and converging. Distance a_1–a_1 (2.9–)3.6 times as long as a_1; distance a_1–a_2 (2.7–)3.0(–3.3) times as long as distance a_2–a_3; distance *st*–*st* (1.7–)1.8(–2.0) times as long as *st* and 1.0(–1.3) times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with broad, shallow indentation. Relative lengths of setae (pygidial a_1 = 10): b_1 = (53–)60(–64), b_2 = (23–)27; setae annulate–striate, b_1 thin, b_2 curved inward; b_1 1.3(–1.5) times as long as interdistance; b_2 as long as (– 1.4 times as long as) distance b_1–b_2.

Anal plate (Figures 36D, I) broadest in anterior half, (1.0–)1.2(–1.5) times as long as broad, in tergal view similar to the head of a snake, posterior part rounded, two small asymmetrically leaf-shaped appendages protruding backward from distal part of sternal side, appendages with short pubescence, curved inward, ≈0.3 of the length of plate. Plate faintly pubescent, in some specimens pubescence distinct.

ETYMOLOGY

From the Latin serpens = snake (referring to the appearance of the anal plate).

***Decapauropus sphen* sp. nov.**

urn:lsid:zoobank.org:act:7140FA14-A847-451A-A699-44ED342C140D

Figure 38A–I

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 19 May 1981 (WAM T 125560).

Paratypes

Australia: *Western Australia*: 2 subad. 8(□), 3 juv. 6, same data as holotype (WAM T125561).

DIAGNOSIS

Decapauropus sphen sp. nov. may be closest to *D. lustrivagus* Remy from Madagascar (Remy 1956d) but is well distinguished from it by some pygidial characters: the *st* are thick, clavate and cut squarely distally and shorter than half of their interdistance, not thin, subcylindrical, blunt and longer than half of their interdistance, the anal plate is broadest most anteriorly with diverging appendages, not behind the anterior end and almost parallel appendages, the a_1 are also thicker and longer than the a_3, not of the same thickness and shorter than the a_3.

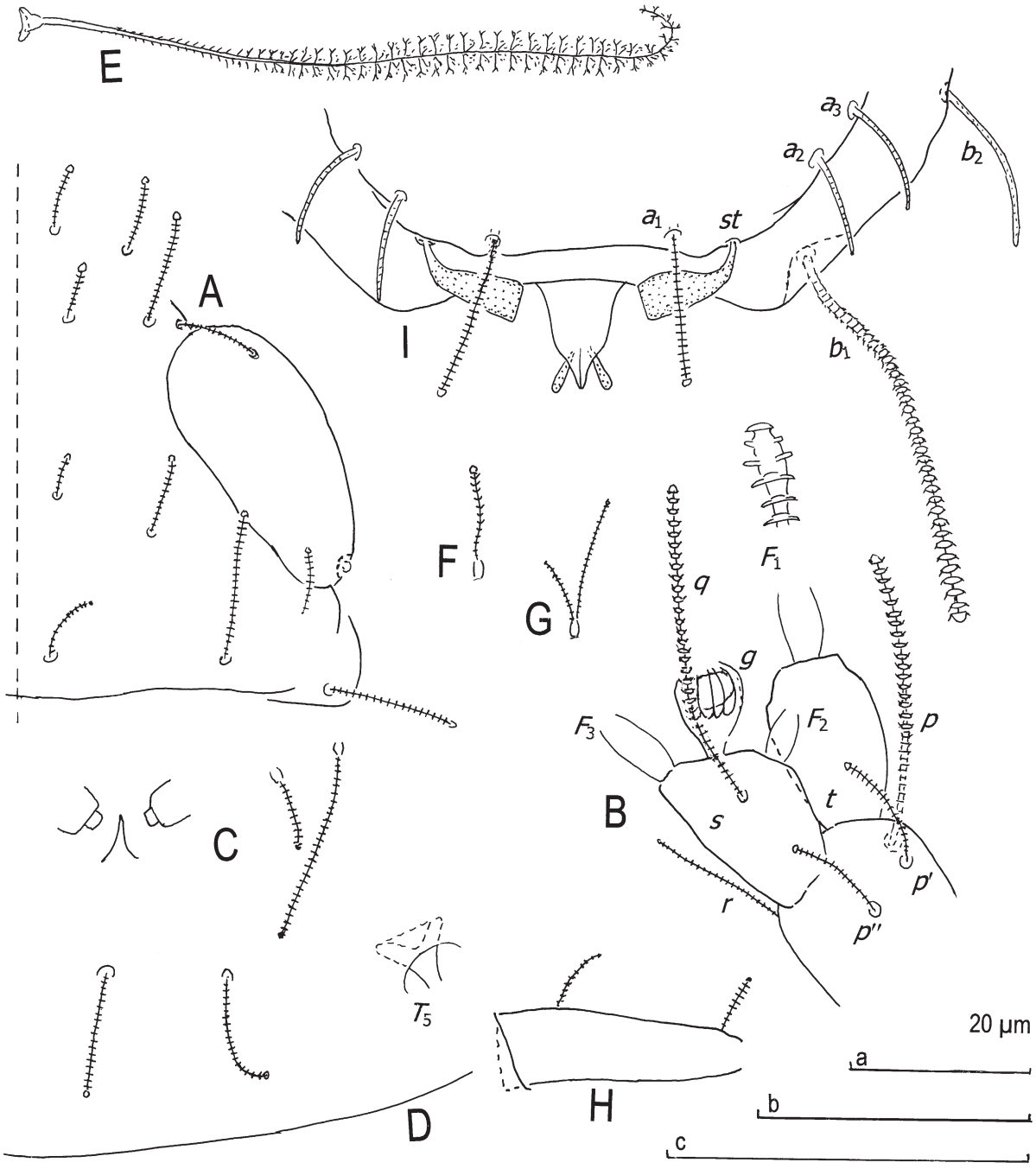

FIGURE 38 *Decapauropus sphen* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, right antenna, sternal view; C, collum segment, median and left part, sternal view; D, posterior part of tergite VI; E, T_5; F, seta on coxa of leg 9; G, seta on trochanter of leg 9; H, tarsus of leg 9; I, pygidium, tergal view. Scale a: Figure E; b: Figures A, C, F–H; c: Figures B, D, I.

DESCRIPTION

Adult female holotype

Length: 0.52 mm.

Head (Figure 38A): longish, setae of short–medium length, cylindrical, annulate. Relative lengths of setae, 1st row: a_1 = 10, a_2 = 11; 2nd row: a_1 = 9, a_2 = 18, a_3 = 13; 3rd row: a_1 = 7, a_2 = 12; 4th row: a_1 = 12, a_2 = 24, a_3 = 11, a_4 = 22; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 0.9, 2nd row 0.5, 3rd row 2.0, 4th row 0.8. Temporal organs ovoid in tergal view, length 0.9 of shortest interdistance; small pistil in posterior part. Head cuticle glabrous.

Antennae (Figure 38B): segment 4 with 4 subcylindrical annulate setae, *r* very thin; relative lengths of setae: p = 10, p' = p'' = 3, r = 5. Tergal seta *p* 1.8 times as long as tergal branch *t*. The latter branch fusiform, 1.5 times as long as its greatest diameter and 0.9 of the length of sternal branch *s*, that branch 1.4 times as long as its greatest diameter; anterodistal corner truncate. Seta *q* as *p* of 4th segment, twice longer than *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 8; F_2 = 35, bs_2 = 5; F_3 = 86, bs_3 = 9. F_1 5.4 times as long as *t*, F_2 and F_3 1.7 and 4.2 times as long as *s* respectively. Distal calyces flattened; distal part of flagella axes fusiformly widened below calyces. Globulus *g* almost spherical, 1.3 times as long as wide, ≈11 bracts, capsule weakly flattened; width of *g* 0.8 of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figure 38 C, D): setae of collum segment (Figure 38C) thin, simple, cylindrical, blunt, densely annulate; sublateral setae 2.8 times as long as submedian setae; sternite process small, pointed anteriorly; appendages subcylindrical with thick caps; process and appendages glabrous.

Setae on tergites as setae of head; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 38D) thin, 0.7 of interdistance and 0.8 of the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha: relative lengths: T_1 = 100, T_2 = 115, T_3 = T_4 = 48, T_5 = 119 and 123; axes thin, simple, with simple oblique pubescence on proximal 1/3 and ramose erect hairs in whorls more outward, on distal part of T_5 distinctly shortened (Figure 38E).

Legs (Figures 38F–H): setae on coxa of 9th leg (Figure 38 F) simple, seta on trochanter (Figure 38G) furcate, both thin, densely annulate. Corresponding setae on more anterior legs simple. Tarsus of leg 9 (Figure 38H) tapering, 3.0 times as long as its greatest diameter. Setae densely annulate, proximal one thin, cylindrical, blunt, distal one weakly clavate, proximal seta 0.3 of the length of tarsus and 1.1 times as long as distal one. Cuticle of tarsus glabrous.

Pygidium (Figure 38 I).

Tergum: posterior margin between *st* with shallow indentation. Relative lengths of setae: a_1 = 10, a_2 = 7, a_3 = *st* = 8; *a*-setae cylindrical, blunt, annulate–striate, a_1 straight, thicker and longer than a_2 and a_3, the latter two somewhat curved inward and diverging, *st* large, strongly clavate, cut squarely distally, angled inward, faintly granular. Distance a_1–a_1 0.9 of the length of a_1; distance a_1–a_2 twice longer than distance a_2–a_3; distance *st*–*st* 2.2 times as long as *st* and 1.8 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with broad shallow indentation. Relative lengths of setae (pygidial a_1 = 10): b_1 = 31, b_2 = 12; setae cylindrical, b_1 striate–annulate, b_2 faintly striate, curved inward, diverging; b_1 1.4 times as long as interdistance; b_2 0.8 of distance b_1–b_2.

Anal plate (Figure 38 I) 1.6 times as long as broad, broadest anteriorly, wedge-shaped, lateral margins convex just behind the middle, two clavate, granular, diverging appendages protruding backward-outward from distal part of sternal side, length of appendages 0.4 of the length of plate; plate glabrous.

ETYMOLOGY

From the Greek sphen = wedge (referring to the shape of the anal plate).

Decapauropus spicatus Remy, 1957

Decapauropus spicatus Remy 1957b: 138–140.

MATERIAL EXAMINED

Australia: ***Western Australia*:** 2 ad. 9(□, □), Dwellingup, Yarragil Brook site, in litter, 15 April 1981; 4 ad. 9(□), same data except 21 July 1981; 2 ad. 9(□), same data except in soil, 18 July 1980; 1 ad. (□), Murray River site, 25 July 1980; 1 ad. 9 (□), Yarragil Brook site, 11 August 1980; 2 ad. 9(□, □), 1 subad. 8(□), 1 juv. 3, same data except 18 August 1980; 6 ad. 9(2□,4□), same data except 14 September 1980; 2 ad. 9(□), same data except 15 September 1980; 2 ad. 9(□, □), 1 juv. 6, 1 juv. 3, same data except 20 September 1980; 2 ad. 9(□), 1 subad.8(□), 1 juv. 5, same data except 16 October 1980; 2 juv. 6, Murray River site, 18 October 1980; 2 ad.9(□), 2 subad.8 (□), Yarragil Brook site, 23 October 1980; 1 subad. 8(□), same data except 11 December 1980; 1 ad. 9(□), same data except 9 January 1981; 1 subad. 8(□), 2 juv. 6, same data except 12 January 1981; 8 ad. 9(5□, 3□), 1 subad. 8(□), 1 juv. 3, same data except 18 February 1981; 1 ad. (□), 1 juv. 6, 2 juv. 3, Murray River site, 25 February 1981; 11 ad. 9(5□,6□), 1 juv. 6, Yarragil Brook site, 18 March 1981; 2 ad. 9(□), Murray River site, 25 March 1981; 4 ad. 9(3□, 1□), Yarragil Brook site, 15 April 1981; 5 ad. 9(4□, 1□), same data except 18 April

1981; 13 ad. 9(8□,5□), 1 subad. 8(□), 2 juv. 5, same data except 19 May 1981; 6 ad. 9(2□,4□), Murray River site, 21 April 1981; 1 subad. 8(□), Yarragil Brook site, 21 June 1981; 1 ad. 9(□), same data except 28 June 1981; 2 ad. 9(□), same data except 19 May 1981; 4 ad. 9(3□, 1□), Murray River site, 27 May 1981; 1 ad. 9(□), 1 subad. 8(□), Yarragil Brook site, 22 June 1981; 1 ad.9(□), same data except 23 June 1981; 1 ad. 9(□), same data except 29 June 1981; 1 juv. 5, 1 juv. 3, Murray River site, 28 July 1981; 1 ad. 9(□), Yarragil Brook site, 26 August 1981; 1 ad. 9(□), 2 juv. 3, same data except 31 August 1981; 1 juv. 6, 1 juv. 3, same data except 14 September 1981; 3 ad. 9(□), 1 subad. 8(□), same data except 15 September 1981; 2 ad. 9(□, □), 1 subad. 8(□), Murray River site, 21 September 1981; 3 ad. 9(2□, 1□), 1 juv. 5, Yarragil Brook site, 29 September 1981; 1 ad. 9(□), same data except 29 December 1981.

REMARKS

The original description can be supplemented in the following respects. In some specimens studied here the *st* are less clavate and their transversal striation less pronounced than described by Remy (1957b), the 6th tergite has 6+4 setae and is most often covered by a pubescence increasing in length posteriorly; the pygidial tergum is glabrous; the genital papillae are proportionally small, conical, 1.5–1.6 times as long as their greatest diameter.

DISTRIBUTION

Earlier know from its type locality only, Western Australia, Gnangara, about 30 km north of Perth (Remy 1957b).

***Decapauropus syntomos* sp. nov.**

urn:lsid:zoobank.org:act:98F9533B-C236-4F0F-95EF-78A03B84D3FF

Figure 39A–I

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 18 August 1980 (WAM T 125562).

Paratypes

Australia: *Western Australia*: 1 ad. 9(□), same data as holotype except 14 September 1980 (WAM T 125563); 1 ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, 27 May 1981 (WAM T 125564).

Non-types

Australia: *Western Australia*: 2 juv. 3, 1 juv. 6, same data as holotype except 20 September 1980.

DIAGNOSIS

This species is easily distinguished from other *Decapauropus* species known by the many rudimentary setae on the submedian and posterior part of the head in combination with the particular shape of the *st*, enlarged and cut squarely distally and with distinct striation. The shape of the anal plate and the *st* may indicate relationship to two species described by Remy (1956d) from Madagascar, *D. vicinus* and *D. vicarius*.

DESCRIPTION

Adult female holotype (and paratypes)

Length: (0.73–)0.75 mm.

Head (Figure 39A): tergal setae a_1 in all rows rudimentary with a few short pubescence hairs only; other setae of medium length, annulate. Relative lengths of setae, 1st row: $a_1 = 1$, $a_2 = (5–)7$; 2nd row: $a_1 = 1$, $a_2 = (10–)11$, $a_3 = (5–)7$; 3rd row: $a_1 = 1$, $a_2 = (5–)8$; 4th row: $a_1 = a_2$(probably broken) $= 1$, $a_3 = 8(–10)$, $a_4 = (5–)10$; lateral group setae not studied. Ratio $a_1/a_1–a_1$ in 1st row 0.2, 2nd and 3rd rows 0.1(–0.2), 4th row 0.2(–0.4). Temporal organs ovoid in tergal view, 1.0(–1.3) times as long as shortest interdistance; small aperture in posterior part. Posterior margin of head straight but divided into five lobes, submedian ones smallest. Head cuticle glabrous.

Antennae (Figure 39B): segment 4 with 4 annulate setae, *p* subcylindrical, thickest in distal half, other setae cylindrical, *r* thin; relative lengths of setae: $p = 10$, $p' = 4$, $p'' = 5$, $r = (5–)6$. Tergal seta *p* (1.8–)2.2 times as long as tergal branch *t*. The latter branch fusiform, 1.7(–2.0) times as long as its greatest diameter and (0.9–)1.0(–1.1) times as long as the length of sternal branch *s*, that branch 1.5(–1.7) times as long as its greatest diameter, anterodistal corner truncate. Seta *q* as *p* of 4th segment but thinner, (1.2–)1.4(–1.6) times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, $bs_1 = 5(–7)$; $F_2 = 34(–36)$, $bs_2 = (4–)5$; $F_3 = 86(–90)$, $bs_3 = 7$. F_1 5.0(–5.4) times as long as *t*, F_2 and F_3 1.8(–2.1) and (4.4–)4.9 times as long as *s* respectively. Distal calyces helmet-shaped; distal part of flagella axes fusiformly widened below calyces. Globulus *g* almost spherical, 1.4 times as long as wide, ≈13 bracts, capsule with flattened bottom; width of *g* (0.9–)1.1 times as long as greatest diameter of *t*. Antennae glabrous.

Trunk (Figure39C, I): setae of collum segment (Figure 39C) simple, somewhat subcylindrical, blunt, annulate; sublateral ones 1.9(–2.0) times as long as submedian ones; sternite process small, pointed anteriorly; appendages barrel-shaped with thick caps; process glabrous, appendages faintly pubescent.

Setae on tergites as sublateral setae of head; 4+4

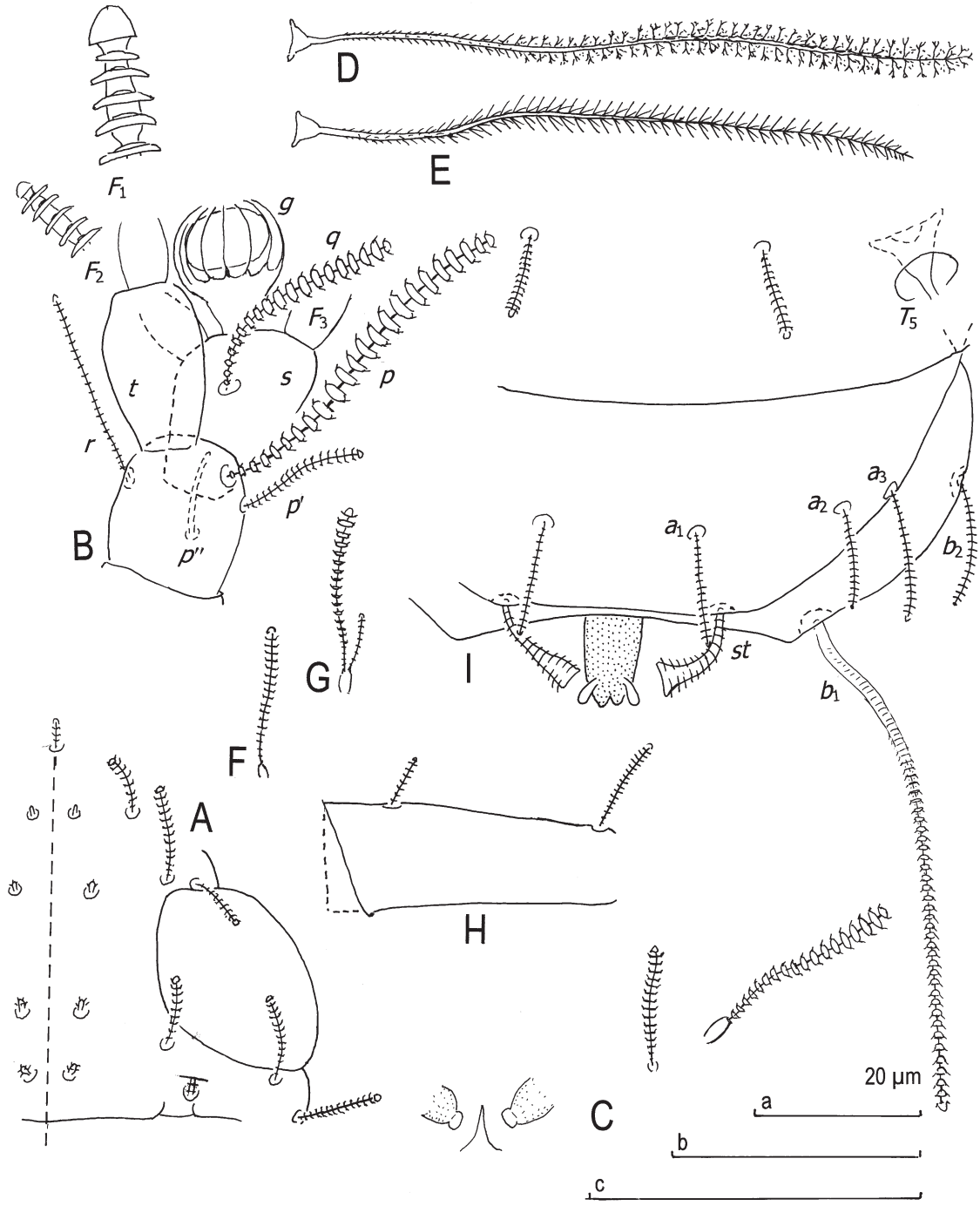

FIGURE 39 *Decapauropus syntomos* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, left antenna, tergal view; C, collum segment, median and left part, sternal view; D, T_3; E, T_5; F, seta on coxa of leg 9; G, seta on trochanter of leg 9; H, tarsus of leg 9; I, posterior part of tergite VI and posteriomedian and right part of the pygidium, sternal view. Scale a: Figures A, D, E; b: Figures C, F–H; c: Figures B, I.

setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 39 I) 0.4 of interdistance and (0.9–)1.0 times as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures 39D, E): relative lengths: T_1 = 100, T_2 = (103–)108(–117), T_3 = (112–)137(–142), T_4 = (98–)117, T_5 = (117–)125(–141); axes simple thin, somewhat thickened in T_3 (Figure39D), pubescence on T_5 (Figure 39E) and proximal part of other bothriotricha of simple oblique hairs, very distinct on T_5, main parts of

T_1–T_4 with branched hairs arranged in whorls, longest on T_1 and T_2.

Legs (Figures 39F-H): setae on coxa of leg 9 (Figure 39F) simple, on trochanter (Figure 39G) furcate, branches annulate, secondary branch of trochanter short thin. Tarsus of leg 9 (Figure 39H) inconsiderably tapering, 2.7(–3.0) times as long as its greatest diameter. Setae subcylindrical blunt, densely annulate, proximal seta 0.2 of the length of tarsus and 0.5(–0.7) of the length of distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 39 I).

Tergum: posterior margin rounded, but almost straight between *st*. Relative lengths of setae: a_1 = 10, a_2 = (8–)9–10, a_3 = 11(–13), *st* = (7–)9; *a*-setae almost straight, densely annulate, *st* strongly enlarged distally, there cut squarely, distinctly striate. Distance a_1–a_1 (as long as –)1.3 times as long as a_1; distance a_1–a_2 (2.5–)3.0 times as long as distance a_2–a_3; distance *st*–*st* (2.0–)2.2 times as long as *st* and 1.4(–1.7) times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with broad, shallow indentation. Relative lengths of setae (pygidial a_1 = 10): b_1 = (37–)43, b_2 = 11(–15); setae cylindrical, annulate, b_2 curved inward; b_1 1.2(–1.3) times as long as interdistance; b_2 0.7(–1.0) of distance b_1–b_2.

Anal plate (Figure 39 I) linguiform, broadest in anterior half, 1.6 times as long as broad, with small V-shaped distal incision, two clavate, diverging appendages protruding backward-outward from distal part of tergal side, appendages somewhat curved inward, 0.3 of the length of plate. Plate faintly granular, appendages glabrous.

ETYMOLOGY

From the Greek syntomos = abridged, shortened (referring to the setae of the median part of the head).

***Decapauropus tanaos* sp. nov.**

urn:lsid:zoobank.org:act:F6D5DE1F-CB74-4812-8F66-C5307BB3ADAE

Figure 40A–I

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 29 September 1981 (WAM T 125565).

Paratypes

Australia: *Western Australia*: 1 ad. 9(□), 1 juv. 6, same data as holotype (WAM T 125566).

DIAGNOSIS

Decapauropus tanaos is well defined, especially by its long process between the appendages of the collum segment, and by the lengthened distal part of the genital papillae. The shape of the anal plate may point to relationships to species in the Madagascan and Oriental regions.

DESCRIPTION

Adult male holotype (and paratype)

Length: (0.45–)0.51 mm.

Head (Figure 40A): setae of medium length–long, blunt, annulate. Relative lengths of setae, 1st row: a_1 = 10, a_2 = 11; 2nd row: a_1 = (14–)15, a_2 = (25–)27, a_3 = (≈15–)20; 3rd row: a_1 = (10–)11, a_2 = 16; 4th row: a_1 = (11–)13, a_2 = 26, a_3 = (23–)26, a_4 = 16(–17); lateral group setae (holotype only): l_1 = 26. Ratio a_1/a_1–a_1 in 1st row (0.9–)1.0, 2nd row (0.6–)0.8, 3rd row 1.1(–1.3), 4th row 1.5(–1.8). Temporal organs in tergal view narrowest anteriorly, 1.2 times as long as shortest interdistance; small spherical pistil in posterior half. Head cuticle almost glabrous.

Antennae (Figure 40B): segment 4 with 5 cylindrical, annulate, blunt setae, *p‴* rudimentary, *r* (not studied, hidden); their relative lengths: *p* = 10, *p′* = 6(–7), *p″* = 2. Tergal seta *p* (1.3–)1.5 times as long as tergal branch *t*. The latter branch fusiform, thickest in distal half, (2.5–)2.7 times as long as its greatest diameter and as long as (–1.1 times as long as) the length of sternal branch *s*, that branch 1.7(–2.0) times as long as its greatest diameter; anterodistal corner truncate. Seta *q* as *p* of 4th segment, 0.9(–1.0) of the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 8(–9); F_2 = (70–)84, bs_2 = 8; F_3 = (86–)87, bs_3 = (8–)9. F_1 2.8(–3.6) times as long as *t*, F_2 and F_3 (2.3–)3.2 and (2.9–)3.4 times as long as *s* respectively. Distal calyces small helmet-shaped; distal part of flagella axes fusiformly widened below calyces. Globulus *g* spherical with thin stalk, (1.3–)1.4 times as long as wide, ≈8 bracts, capsule almost spherical; width of *g* 0.7(–0.8) of the length of greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 40C, D): setae of collum segment (Figure 40C) furcate blunt, main branch subcylindrical, annulate, secondary branch on sublateral setae rudimentary glabrous, on submedian setae thin, short, annulate; sublateral setae 2.2(–2.4) times as long as submedian setae; sternite process large, strongly extended anteriorly, small anterior incision; appendages with straight posterior margin, caps with neck and collar; process and appendages faintly granular.

Setae on tergites cylindrical, blunt, on anterior and middle tergites annulate, most posteriorly pubescent; 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Submedian posterior setae on VI (Figure 40D)

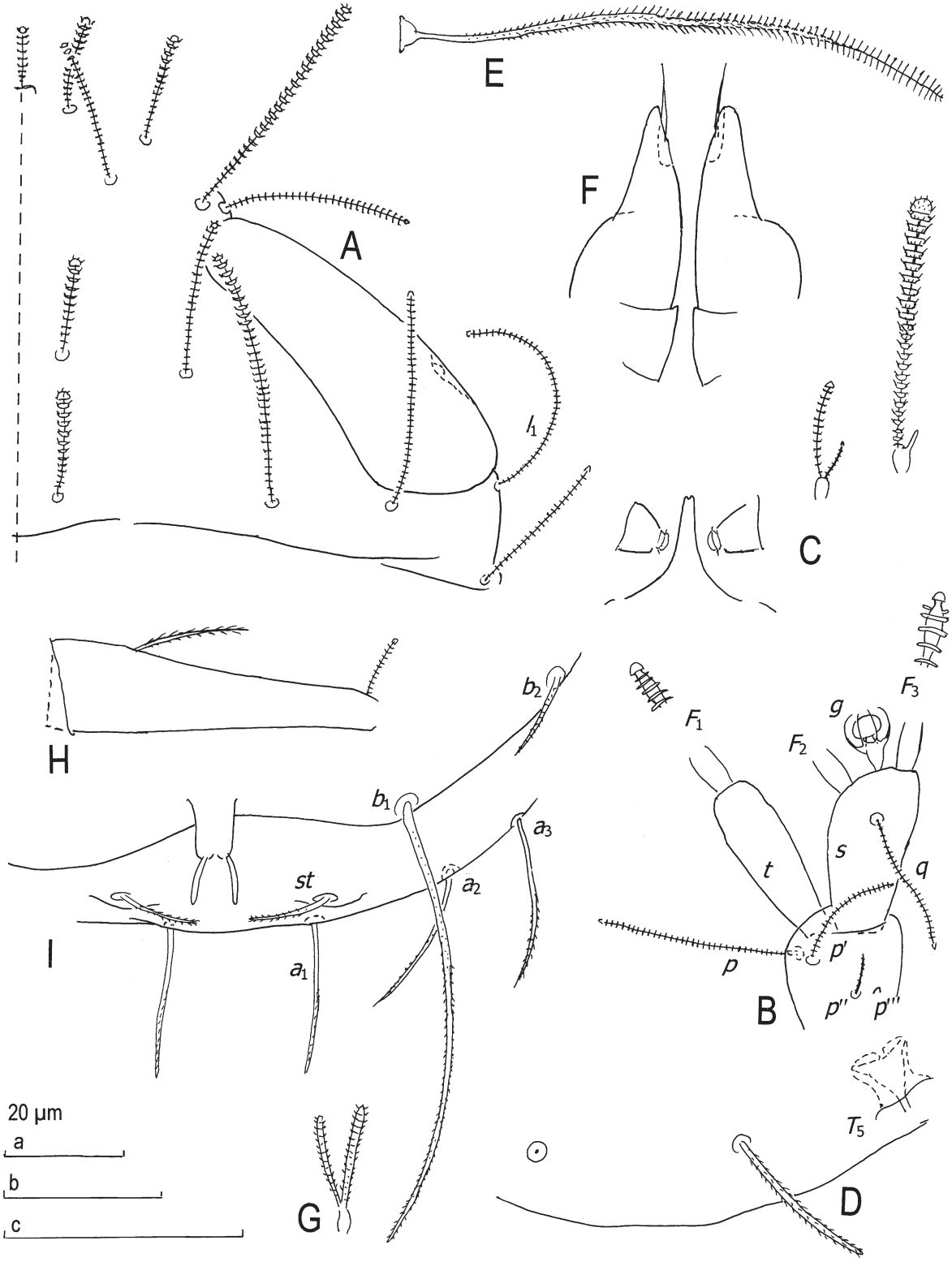

FIGURE 40 *Decapauropus tanaos* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, left antenna, sternal view; C, collum segment, median and left part, sternal view; D, tergite VI, posterior part; E, T_3; F, genital papillae, anterior view; G, seta on trochanter of leg 9; H, tarsus of leg 9; I, posteriomedian and left posterior part of the pygidium, sternal view. Scale a: Figure E; b: Figures B, F, G, H; c: Figures A, C, D, I.

diverging, 0.8 of interdistance and (1.0–)1.1 times as long as the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha: relative lengths: T_1 = 100, T_2 = 113(–116), T_3 = (109–)111, T_4 = (113–)117, T_5 = (153–)157(–169); axes simple, very thin in all but T_3, the latter (Figure 40E) somewhat thickened in the middle; pubescence of simple hairs, erect on distal parts of T_1-T_3.

Genital papillae (Figure 40F): basal segments well developed, papillae 2.0(–2.3) times as long as greatest diameter, glabrous, distal half extended into narrow cone, seta 0.3 of the length of papilla.

Legs (Figure 40G, H): setae on coxa and trochanter (Figure 40G) of leg 9 furcate, branches subsimilar, cylindrical, blunt, striate-annulate. Corresponding setae on more anterior legs with rudimentary secondary branch. Tarsus of leg 9 (Figure 40H) distinctly tapering, 3.7 times as long as its greatest diameter. Proximal seta subcylindrical tapering, pointed, with oblique pubescence, 0.4(–-0..5) of the length of tarsus and 1.8(–2.2) times as long as the length of distal seta, the latter subcylindrical, densely striate. Cuticle of tarsus glabrous.

Pygidium (Figure 40 I).

Tergum: posterior margin rounded. Relative lengths of setae: a_1 = a_2 = 10, a_3 = 12(–15), *st* = 5(–6); setae thin, tapering, a_1 almost straight, a_2 and a_3 curved inward, a_2 also converging, *st* tapering, curved inward and strongly converging. Distance a_1–a_1 as long as a_1; distance a_1–a_2 (1.5-)1.7 times as long as distance a_2–a_3; distance *st*–*st* (2.3–)2.4 times as long as *st* and (1.3–)1.4 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 shallowly indented. Relative lengths of setae (pygidial a_1 = 10): b_1 = 30(–31), b_2 = 6; setae thin, tapering, striate distally, b_2 curved inward, converging; b_1 1.2 times as long as interdistance; b_2 0.6 of distance b_1–b_2.

Anal plate (Figure 40 I) glabrous, broadest anteriorly, 1.3 times as broad as long, posteriolateral corners rounded, posterior margin with shallow indentation, two cylindrical striate, almost straight and somewhat diverging appendages protruding backward from near distal margin, appendages (0.7–)0.8 of the length of plate.

ETYMOLOGY

From the Greek tanaos = long, stretched out (referring to the shape of the process of the collum segment and the distal part of the genital papillae).

Decapauropus tenuis Remy, 1948

Decapauropus tenuis Remy 1948b: 131–132, figure 12; Remy, 1959b: 164; Scheller 2011a: 1.

MATERIAL EXAMINED

Australia: *Western Australia*: c. 22 km SE of Dwellingup, Yarragil Brook site, in litter, 1 ad. 9(□), 21 July 1981; 1 ad. 9(□), same data except in soil, 18 August 1980; 1 ad. 9(□), c. 11 km SSE of Dwellingup, Murray River site, 27 May 1981.

DISTRIBUTION

Decapauropus tenuis is a tropical species with large distribution, sometimes introduced. It is also known from Netherlands (hothouse), Morocco, Algeria, Azores; Egypt, Senegal, Angola, Gambia, Ivory Coast, Congo-Brazzaville, Kenya, Madagascar, Réunion, Mauritius, Seychelles; Pondichéry, Sri Lanka; Brazil, Argentina.

Queensland, Gordonvale, sugar cane field; Western Australia, Hope Downs Station.

Decapauropus terrestris Scheller, 2009

Decapauropus terrestris Scheller 2009b: 305–307, figures 82–93.

s. n. *Allopauropus (Decapauropus)* sp. 8: Greenslade 2008: 156, 159.

DISTRIBUTION

Tasmania, in the northwest: Savage River; in the northeast: Mt Victoria; in the southwest: Frodshams Pass. Not known outside Australia.

Decapauropus terrulentus sp. nov.

urn:lsid:zoobank.org:act:9D991122-BBFC-4879-9258-1B6297D0E4FD

Figure 41A–J

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 23 October 1980 (WAM T 125567).

Paratypes

Australia: *Western Australia*: 4 ad. 9(1□, 3□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 29 June 1981 (WAM T 125568).

Non-types

Australia: *Western Australia*: 2 ad. 9(□), Yarragil Brook site, in soil, 18 July 1980; 1 ad. 9(□), same data except 18 August 1980; 1 ad. 9(□), same data except 15 September 1980; 1 subad. 8(□), same data except 12 January 1981; 1 subad. 8(□), same data except 18 March 1981; 1 ad. 9(□), same data except 19 May 1981; 1 ad. 9(□), Murray River site, 27 May 1981; 2 ad. 9(□), Yarragil Brook site, 23 June 1981; 1 ad. 9(□), same data except 15 September 1981.

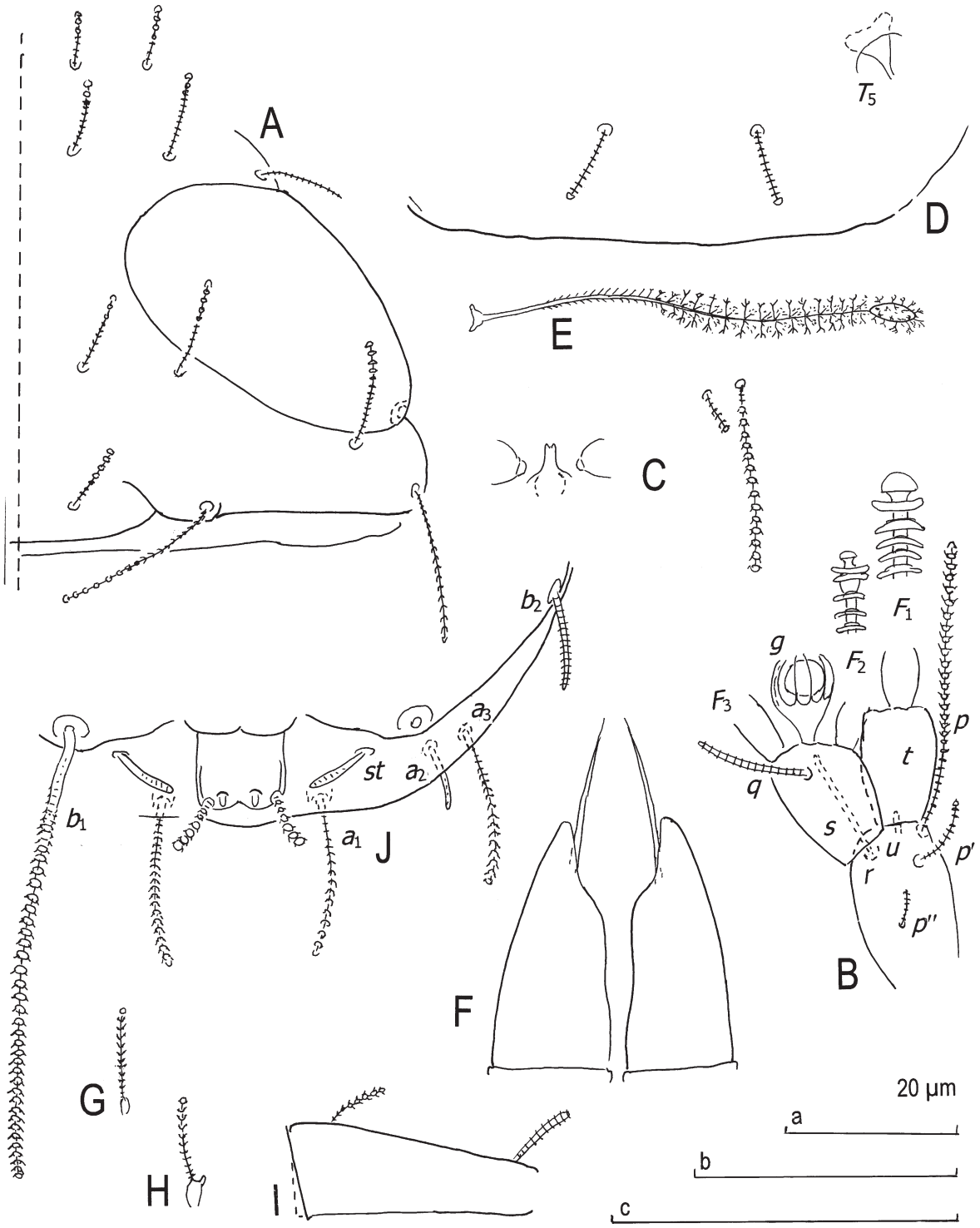

FIGURE 41 *Decapauropus terrulentus* sp. nov., holotype A–E, G–J, paratype F: A, head, median and right part; B, right antenna, sternal view; C, collum segment, median and left part, sternal view; D, tergite VI, posterior part; E, T_3; F, genital papillae, anterior view; G, seta on coxa of leg 9; H, seta on trochanter of leg 9; I, tarsus of leg 9; J, pygidium, posteriomedian and left part, sternal view. Scale a: Figure E; b: Figures C, D, F, G–I; c: Figures A, B, J.

DIAGNOSIS

Decapauropus terrulentus sp. nov. is a small species close to *D. compactus* described above from which it can be distinguished by the shape of the setae *q* on the sternal antennal branches, striate in *D. terrulentus,* with large annuls in *D. compactus,* the shape of the antennal globulus *g,* subspherical, not pyriform, the bothriotricha T_3, with distal swelling, no swelling, and by the setae on the trochanter of the 9th pair of legs, simple, not furcate.

DESCRIPTION

Adult female holotype (and paratypes)

Length: (0.48–)0.56(–0.57) mm.

Head (Figure 41A): tergal setae of short–medium length, cylindrical blunt annulate. Relative lengths of setae, 1st row: a_1 = 10, a_2 = 12(–13); 2nd row: a_1 = 13, a_2 = 17(–19), a_3 = (14–)17; 3rd row: a_1 = 13(–15), a_2 = 16(–18); 4th row: a_1 = 12(–13), a_2 = (26–)33, a_3 = (16–)20, a_4 = 25(–30); lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 0.8, 2nd row 0.7(–0.8), 3rd row 0.6, 4th row (0.6–)0.7. Temporal organs large, 1.5(–1.7) times as long as their shortest interdistance; small aperture or pistil at posterior margin. Head cuticle glabrous.

Antennae (Figure 41B): segment 4 with 5 cylindrical, blunt, annulate setae; their relative lengths: p = 10, p' = 2, p'' = 1, r = 4(–5), u = 1. Tergal seta p 2.6 times as long as tergal branch *t*. The latter branch widest in distal half, 1.6 times as long as its greatest diameter and almost as long as the length of sternal branch *s*, that branch 1.5 times as long as its greatest diameter; anterodistal corner of *s* truncate. Seta *q* short, cylindrical, blunt, striate, 0.9 of the length of *s*. Lengths of flagella not studied. The F_2 thinnest, distal calyces somewhat flattened, distal part of flagella axes below calyces widened in F_2 only. Globulus *g* subspherical, 1.4 times as long as wide, ≈9 bracts, capsule subspherical; width of *g* almost as long as greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 41C, D): setae of collum segment (Figure 41C) simple, subcylindrical, blunt, annulate; sublateral setae (4.4–)4.7 times as long as submedian setae; sternite process narrow anteriorly, with anterior incision; appendages subspherical with small caps; process and appendages glabrous.

Setae on tergites as posterior setae of head, cylindrical, blunt, annulate, 4+4 setae on I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 41D) (0.4–)0.5 of interdistance and 0.7 of the length of pygidial setae a_1.

Bothriotricha (Figure 41E): relative lengths (holotype only): T_1 = 100, T_2 = 109, T_3 = 111, T_4 = 113 T_5 = 130; axes thin, pubescence hairs simple on T_5 and on proximal parts of the others, longer branched and in whorls on distal halves of T_1–T_4; T_3 (Figure 41E) with distal ovoid swelling with ramose pubescence hairs, length of swelling 0.5 of the length of bothriotrix.

Genital papillae (paratype, figure 41F): longish, conical, glabrous, 2.3–2.4 times as long as greatest diameter, seta strong, at least 0.6 of the length of papilla.

Legs (Figures 41G–I): setae on coxa of leg 9 simple (Figure 41G), on trochanter (Figure 41H) with rudimentary secondary branch, main branch in both cylindrical, blunt, annulate. Tarsus of leg 9 (Figure 41 I) tapering, 2.8(–2.9) times as long as its greatest diameter, setae cylindrical, blunt, proximal seta annulate, 0.2(–0.3) of the length of tarsus and (0.8–)0.9 of the length of distal striate seta. Cuticle of tarsus glabrous.

Pygidium (Figure 41J).

Tergum: posterior margin rounded. Relative lengths of setae: a_1 = 10(–11), a_2 = (3–)4, a_3 = (9–)10(–11), *st* = 4; *a*-setae cylindrical blunt, curved inward, a_1 and a_3 annulate, a_2 striate, *st* somewhat clavate, indistinctly striate, converging. Distance a_1–a_1 as long as a_1; distance a_1–a_2 3.5(–3.6) times as long as distance a_2–a_3; distance *st*–*st* 0.4 of the length of *st* and (1.1–)1.2 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with broad indentation, low broad posteriomedian lobe with median incision below anal plate. Relative lengths of setae (pygidial a_1 = 10): b_1 = (27–)29(–30), b_2 = (6–)7; setae cylindrical, blunt, b_1 annulate, b_2 striate, somewhat curved inward; b_1 1.3 times as long as interdistance; b_2 0.6 of distance b_1–b_2.

Anal plate (Figure 41J) glabrous subsquare (–somewhat narrowing anteriorly), posterolateral corners rounded, posteriomedian margin with shallow median incision, four appendages, two short thick blunt glabrous ones protruding backward-downward from posteriosternal side and two longer blunt annulate diverging ones protruding backward from posteriolateral corners; length of longest appendage 0.7(–0.8) of the length of plate.

ETYMOLOGY

From the Latin terrulentus = of the earth (referring to collecting site).

***Decapauropus trilobionos* sp. nov.**

urn:lsid:zoobank.org:act:B9A6FB1B-3ED9-41CE-9F45-41BF4A5C1861

Figures 42A–I

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 19 May 1981 (WAM T 125569).

Paratypes

Australia: ***Western Australia*****:** 6 ad. 9(1□, 5□), 1 subad. 8(□), same data as holotype except 12 January 1981 (WAM T 125570).

DIAGNOSIS

Decapauropus trilobionos may be connected with *D. barrai* Scheller (2005a) from Gabon. Distinguishing characters are the temporal organs, without inner pistil in *D. trilobionos,* with large pistil in *D. barrai*, the shape of the bothriotricha T_3, with 2–3 median swellings, none, and the anal plate, with two long and two short appendages, two long ones only in *D. barrai.*

DESCRIPTION

Adult female holotype (and paratypes)

Length: (0.51–)0.65 mm.

Head (Figure 42A): setae of medium length, cylindrical, blunt, annulate. Relative lengths of setae (holotype only), 1st row: a_1 = 10, a_2 = 10(–12); 2nd row: a_1 = (10–)11, a_2 = (16–)17, a_3 = 12(–14); 3rd row: a_1 = (8–)9(–10), a_2 = 17(–18); 4th row: a_1 = 11, a_2 = (24–)28, a_3 = 18, a_4 = (18–)20; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st and 3rd rows (0.8–)0.9, 2nd row 0.5, 4th row 0.6. Temporal organs ovoid in tergal view, about as long as shortest interdistance; no pistil but small pore at posterior margin. Head cuticle glabrous.

Antennae (Figure 42B): segment 4 with 5 cylindrical–subcylindrical, annulate setae, *p* thickest in distal half, *r* long, straight, tapering, *u* short, tapering, their relative lengths: *p* = 10, *p′* = *p″* = (3–)4, *r* = (5–)6, *u* = 1. Tergal seta *p* 2.1(–2.3) times as long as tergal branch *t*. The latter branch subcylindrical, 1.6(–1.7) times as long as its greatest diameter and as long as sternal branch *s*, that branch 1.4(–1.5) times as long as its greatest diameter; anterodistal corner truncate. Seta *q* as *p′* of 4th segment*,* 1.6 times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments (holotype only): F_1 = 100, bs_1 = 9(–10); F_2 = (36–)37, bs_2 = 4(–6); F_3 = (88–)91, bs_3 = 8. F_1 (5.3–)5.8 times as long as *t*, F_2 and F_3 (1.9–)2.0 and (4.7–)4.9 times as long as *s* respectively. Distal calyces small, on F_2 and F_3 rudimentary; distal part of flagella axes fusiformly widened below calyces. Globulus *g* (1.3–)1.4 times as long as wide, stalk conical, ≈8 bracts, capsule spherical, width of *g* 0.8(–0.9) of the length of greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 42C, I): setae of collum segment (Figure 42C) simple, cylindrical, blunt, annulate, sublateral seta 3.3 times as long as submedian one; sternite process small, narrow anteriorly, may be incised; appendages subspherical with small hemispherical caps; process and appendages glabrous.

Setae on anterior tergites as posteriomedian setae of head, shortening and pubescent on posterior tergites, 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Submedian posterior setae on VI (Figure 42 I) 0.1 of interdistance and almost 0.2 of the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figure 42D): relative lengths: T_1 = 100, T_2 = 104(–106), T_3 = (107–)111(–113), T_4 = 120(–124), T_5 = (141–)148(–154); axes simple, those of T_1, T_2 and T_4 very thin, those of T_3 thicker, with (2–)3 small swellings in the middle. Pubescence on proximal 1/3 of T_1–T_4 and whole the T_5 of short. Simple. oblique hairs, shortest on T_5, pubescence increasing in length on the middle and outer parts of T_1–T_4, there ramose, in whorls, strongest on T_3 (Figure 42D).

Legs (Figures 42E–G): setae on coxa and trochanter of leg 9 furcate, secondary branch rudimentary on coxal seta (Figure 42E), secondary branch on trochanter half of the length of primary branch (Figure 42F), both branches cylindrical, blunt. annulate. Corresponding setae simple on more anterior legs. Tarsus of leg 9 (Figure G) tapering with distal part somewhat bent upward, 3.1 times as long as its greatest diameter; setae cylindrical, annulate, proximal seta 0.2(–0.3) of the length of tarsus and 0.8(–1.0) of the length of distal seta. Cuticle of tarsus glabrous.

Genital papillae (paratype, figure 42H): shape not known from other pauropods, claw-like with large inner opening and without seta, 1.7 times as long as greatest diameter near base.

Pygidium (Figure 42 I).

Tergum: posterior margin rounded but straight between *st.* Relative lengths of setae: a_1 = a_3 = 10, a_2 = (6–)7, *st* = 4; *a*-setae cylindrical tapering, with short pubescence–striate, *st* somewhat clavate and converging, striate. Distance a_1–a_1 1.0(–1.1) times as long as the length of a_1; distance a_1–a_2 3(–5) times as long as distance a_2–a_3; distance *st*–*st* 3.0(–3.1) times as long as *st* and 1.2 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with inconsiderable indentation. Relative lengths of setae (pygidial a_1 = 10): b_1 = 21(–25), b_2 = (10–)11; setae cylindrical, annulate–striate, b_1 1.2 times as long as interdistance; b_2 as long as distance b_1–b_2.

Anal plate (Figure 42 I) narrowest anteriorly, spatulate, 1.2 times as broad as long, posterior margin with three low bulges (in a few paratypes indistinct) and four cylindrical appendages protruding from near posterolateral margin, two long ones pointing backward-outward from rounded posterolateral corners, and two short ones pointing backward from near the base of the former; long appendages longer than plate, short ones 0.1(–0.2) of the length of long ones.

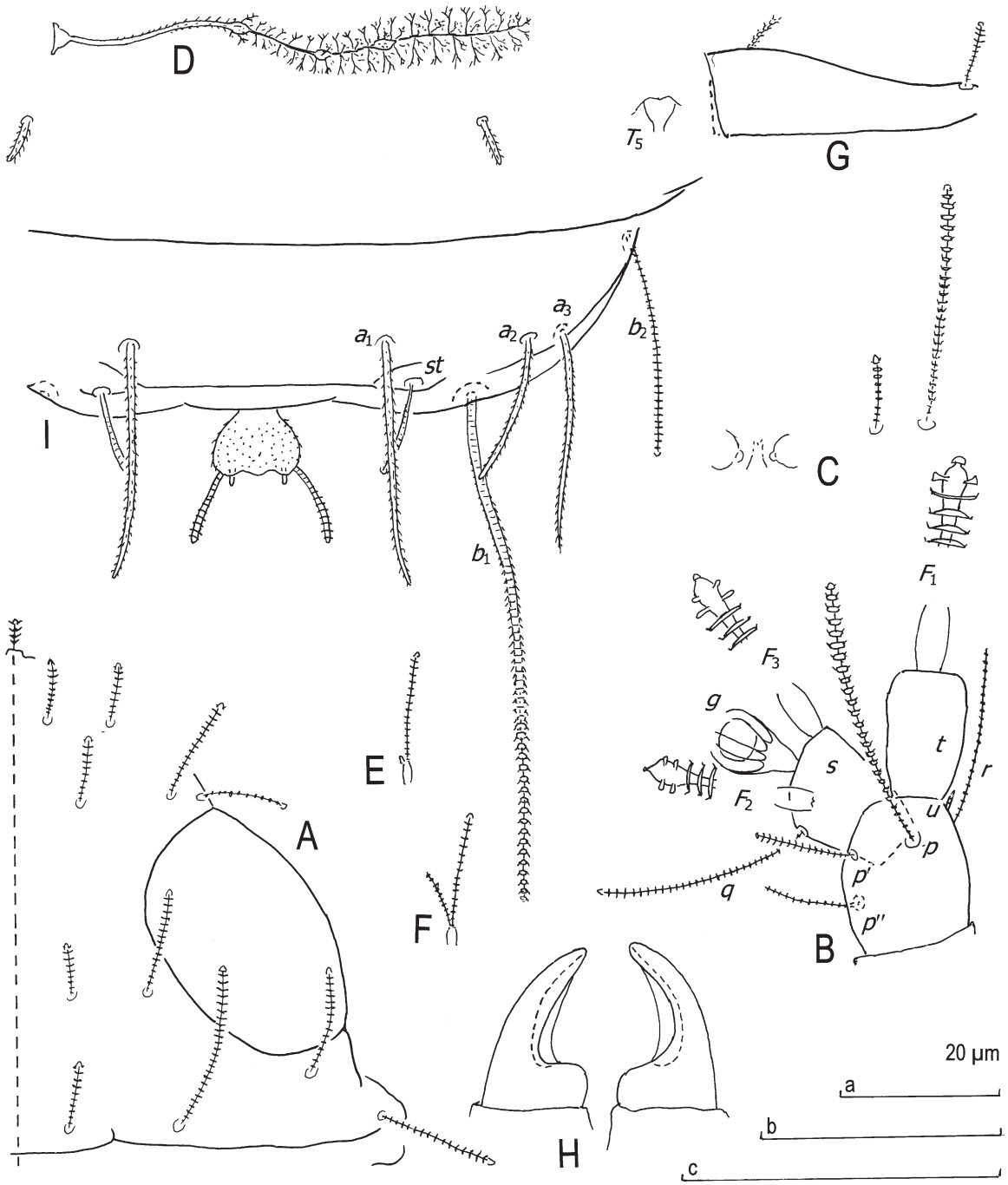

FIGURE 42 *Decapauropus trilobionos* sp. nov., holotype A-G, I, paratype H: A, head, median and right part; B, right antenna, tergal view; C, collum segment, median and left part, sternal view; D, T_3; E, seta on coxa of leg 9; F, seta on trochanter of leg 9; G, tarsus of leg 9; H, genital papillae, anterior view; I, posterior part of tergite VI and median and right part of pygidium, tergal view. Scale a: Figures D, H; b: Figures A, C, E–G; c: Figure B, I.

ETYMOLOGY

From the Greek treis, trion = three, and lobos = lobe, dim. lobion (referring to the shape of the posterior margin of the anal plate).

Decapauropus ungulatus Scheller, 2009

Decapauropus ungulatus Scheller, 2009b: 299–301, figures 51–61.

s. n. *Allopauropus (Decapauropus)* sp. 5: Greenslade 2008: 156, 159.

DISTRIBUTION

Tasmania, in the southwest: Riveaux Creek. Not known outside Australia.

Decapauropus vegrandis sp. nov.

urn:lsid:zoobank.org:act:78302C88-9770-490E-B6C0-69F9C1D43337

Figure 43A–I

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in litter, 15 April 1981 (WAM T 125571).

Paratypes

Australia: ***Western Australia*:** 1 ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 24 October 1980 (WAM T 125572); 1 ad. 9(□), 2 juv. 6, 1 juv. 5, same data except 28 July 1981 (WAM T 125573).

DIAGNOSIS

With this new species included seven of the species in *Decapauropus* described here have rudimentary or utmost short submedian setae on the tergal side of the head. Outside West Australia this character has been reported within this genus only in *D. barroisi* Remy (no a_1 in 4th row) known from Madagascar, the Seychelles, Réunion, Sri Lanka and the U.S.A. and *D. mirimus* Scheller (no a_1 in 3rd row) from Brazil. The latter is least alike the Australian species (quite different bothriotricha T_3 and with furcate distal seta on the tarsi of the last pair of legs) and *D. barroisi* may be closer to them. In *D. vegrandis* the a_1-setae of the rows 1–3 of the tergal head setae are rudimentary in the same way as in *D. hypopsilos, D. improcerus* and *D. kartotrichos*. However, that pattern of the rudimentary head setae in combination with the small anal plate and long *st* give no indication of closer relationships.

DESCRIPTION

Adult male holotype (and paratypes)

Length: (0.52–)0.72 mm.

Head (Figure 43A): tergal setae cylindrical blunt, a_1-setae of rows 1–3 rudimentary, glabrous, other setae of medium length, annulate. Relative lengths of setae (holotype only), 1st row: a_1 = 1, a_2 = 7; 2nd row: a_1 = 1, a_2 = 12–13, a_3 = 7–8; 3rd row: a_1 = 2, a_2 = 8; 4th row: a_1 = 5, a_2 = 10–13, a_3 = 11, a_4 = ?; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 0.2(-0.3), 2nd row = 0.2, 3rd row 0.4(-0.5), 4th row (1.4–)1.6. Temporal organs large, ovoid in tergal view, 2.2 times as long as shortest interdistance; small pistil in posterior part. Head cuticle glabrous.

Antennae (Figure 43B): segment 3 with rudimentary *g′*. Segment 4 with 5 cylindrical, blunt, annulate setae, *p* thickest, *r* straight, *p‴* and *u* rudimentary; their relative lengths: *p* = 10, *p′* = 4, *p″* = (2–)3, *r* = 4. Tergal seta *p* 1.7 times as long as tergal branch *t*. The latter branch fusiform, (2.1–)2.2 times as long as its greatest diameter and 1.2 times as long as sternal branch *s*, that branch 1.6 times as long as its greatest diameter; anterodistal corner truncate. Seta *q* as *p* of 4th segment but thinner, 1.5 times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments (holotype only): F_1 = 100, bs_1 = 6; F_2 = 28, bs_2 = 8; F_3 = 95, bs_3 = 8. F_1 4.5 times as long as *t*, F_2 and F_3 1.9 and 5.0 times as long as *s* respectively. Distal calyces helmet-shaped; distal part of flagella axes fusiformly widened below calyces. Globulus *g* (1.3–)1.4 times as long as wide, stalk thick, ≈10 bracts, capsule with flattened bottom, width of *g* 0.8 of the length of greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 43C, D): setae of collum segment (Figure 43C) simple, subcylindrical, blunt, annulate, sublateral seta (2.3–)2.4 times as long as submedian seta; sternite process small, narrow anteriorly; appendages conical with very small caps; process and appendages faintly pubescent.

Setae on anterior tergites as posteriomedian setae of head, on posterior tergites somewhat tapering, pubescent, 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 43D) 0.7 of interdistance and 0.8 of the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures 43E, F): relative lengths: T_1 = 100, T_2 = 102, T_3 = (109–)113, T_4 = 124, T_5 = 155(–159); axes simple, those of T_1 (Figure 43E), T_2 and T_4 very thin, those of T_3 (Figure 43F) thickest, in distal half with nodules. Pubescence on proximal 1/3 of T_1–T_4 and whole the T_5 of short simple oblique hairs, strongest on T_5, on the middle and outer parts of T_1–T_4 pubescence increasing in length, hairs ramose, in whorls, densest on T_3.

Legs (Figures 43 G–I): setae on coxa of leg 9 probably simple (Figure 43G), seta on trochanter furcate (Figure 43H), branches cylindrical, blunt, annulate. Corresponding setae on more anterior legs simple. Tarsus of leg 9 (Figure 43 I) distinctly tapering, 3.2 times as long as its greatest diameter; proximal seta cylindrical, blunt, striate, 0.3 of the length of tarsus

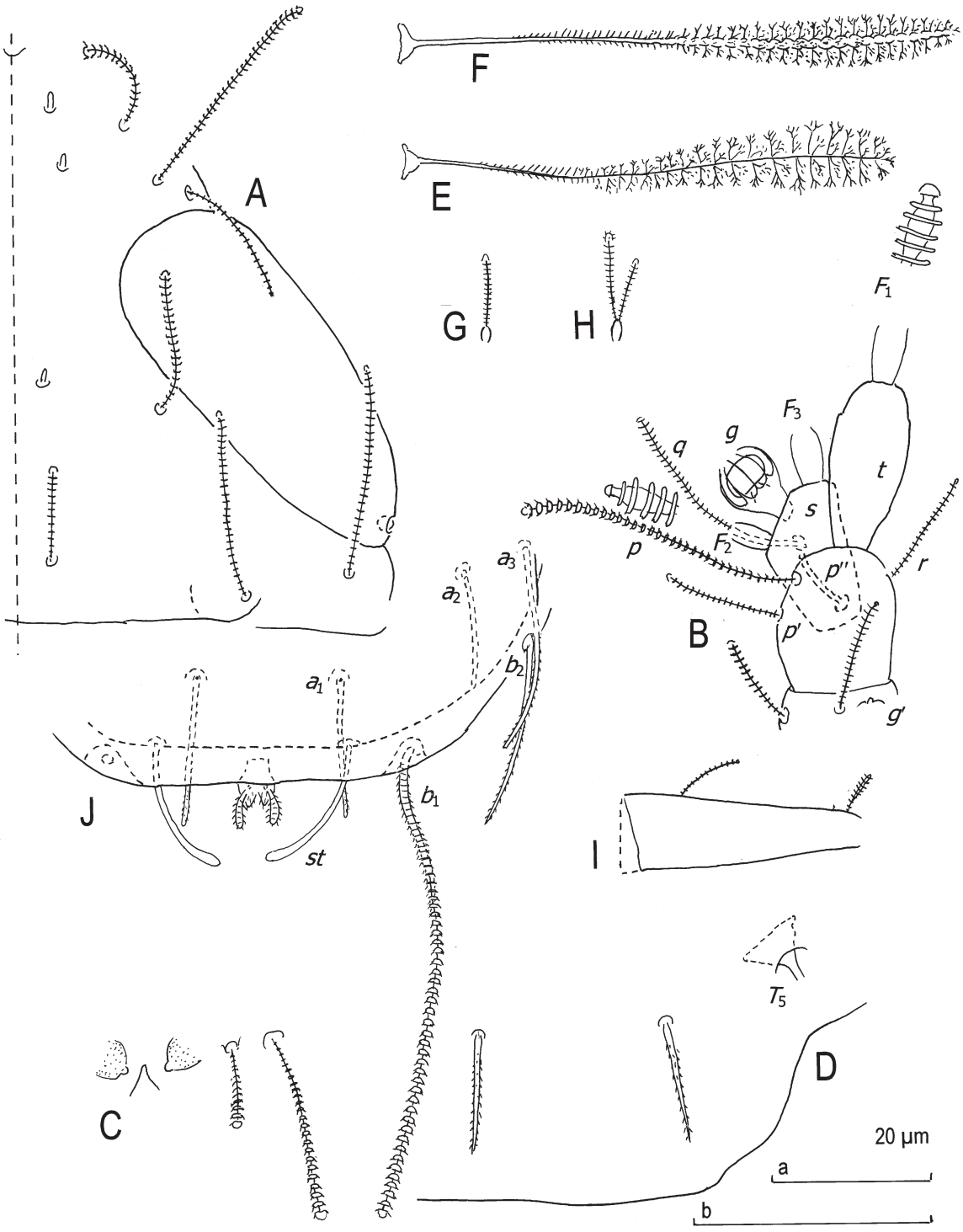

FIGURE 43 *Decapauropus vegrandis* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, right antenna, tergal view; C, collum segment, median and left part, sternal view; D, tergite VI, posteriomedian and right posterior corner; E, T_1; F, T_3; G, seta on coxa of leg 9; H, seta on trochanter of leg 9; I, tarsus of leg 9; J, pygidium, posteriomedian part and left posterior corner, sternal view. Scale a: Figures A, C, E–H; b: Figures B, D, I.

and 1.3 times as long as distal seta, the latter somewhat clavate, striate. Cuticle of tarsus glabrous.

Pygidium (Figure 43J).

Tergum: posterior margin evenly rounded. Relative lengths of setae: a_1 = 10, a_2 = 7, a_3 = (12–)14, *st* = (5–)6; setae cylindrical, blunt, *a*-setae with short pubescence, *st* thin, striate, converging, a_1 almost straight, a_2 and a_3 somewhat curved inward. Distance a_1–a_1 0.9 of the length of a_1; distance a_1–a_2 1.5 times as long as distance a_2–a_3; distance *st*–*st* 1.9 times as long as *st* and 1.3 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with very low

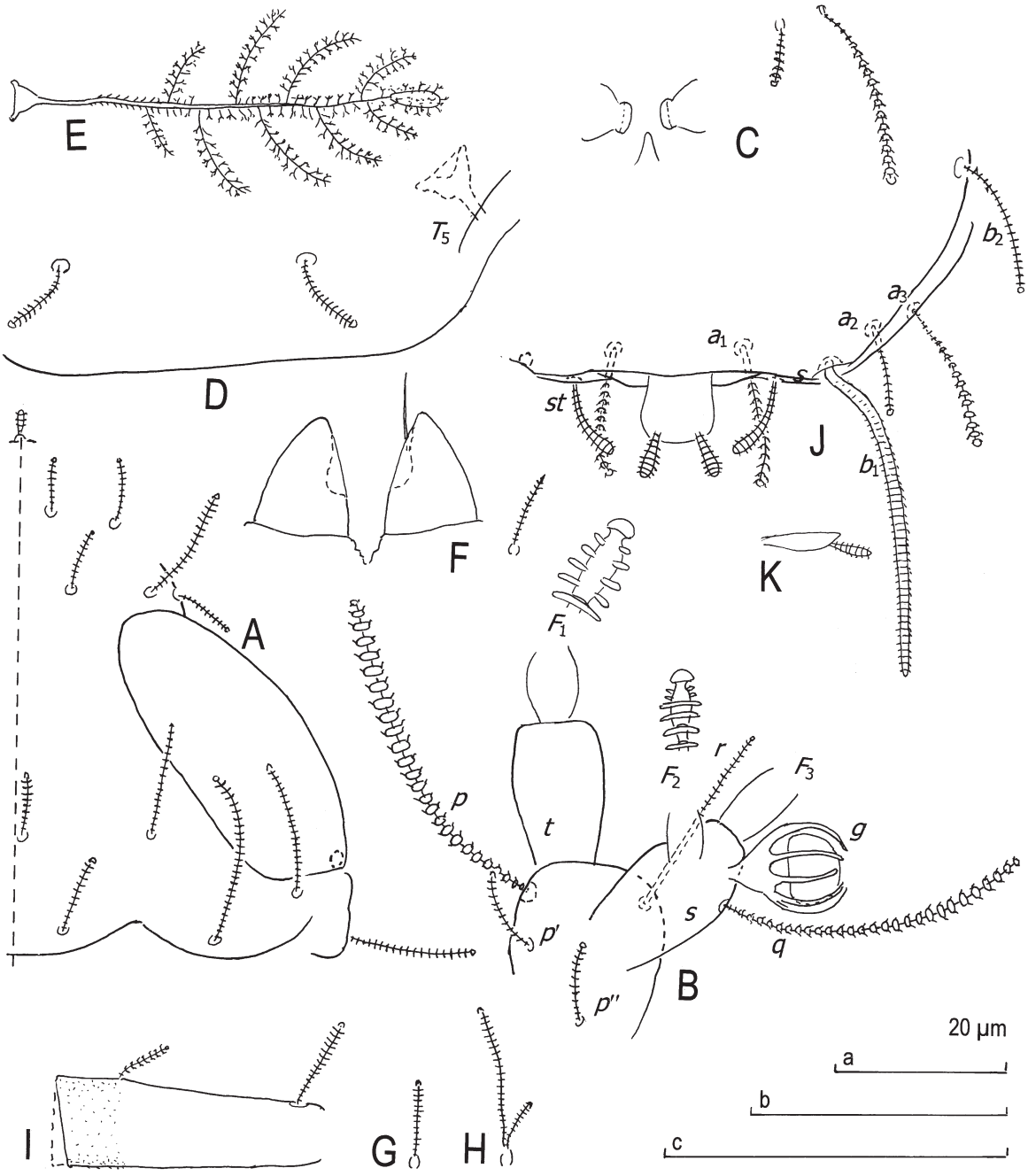

FIGURE 44 *Decapauropus virgosus* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, left antenna, sternal view; C, collum segment, median and left part, sternal view; D, tergite VI, posterior part with right posterior corner; E, T_3; F, genital papillae; G, seta on coxa of leg 9; H, seta on trochanter of leg 9; I, tarsus of leg 9; J, pygidium, posteriomedian and right part, sternal view; K, anal plate, lateral view. Pubescence only partly drawn in I. Scale a: Figures E, F; b: Figures A, C, D, G–I; c: Figures B, J, K.

rounded bulge. Relative lengths of setae (pygidial a_1 = 10): b_1 = 28(–29), b_2 = 11; b_1 cylindrical, annulate–striate, b_2 striate pubescent; b_1 1.3 times as long as interdistance; b_2 0.9 of distance b_1–b_2.

Anal plate (Figure 43 I) very small, narrowest anteriorly, hexagonal, about as broad as long, in posterior third two pairs of appendages both directed posteriorly: two submedian very short knobs and two lateral longer clavate ones, also curved inward, plate with short pubescence, appendages with longer hairs, clavate ones striate; sublateral longer appendages 0.8 of the length of plate.

ETYMOLOGY

From the Latin vegrandis = little (referring to the small anal plate).

Decapauropus virgosus sp. nov.

urn:lsid:zoobank.org:act:78AAE4B1-418D-4151-B1D2-912804F5411C

Figure 44A–K

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 25 May 1981 (WAM T 125574).

Paratypes

Australia: *Western Australia*: 1 ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 23 June 1981 (WAM T 125575); 1 ad. 9(□), same data except 22 September 1981 (WAM T 125576); 1 ad. 9(□), same data except 25 August 1981 (WAM T 125577).

Non-types

Australia: *Western Australia*: 2 ad. 9(□), same data except in soil, 18 July 1980; 6 ad. 9(1□,5□), 1 juv. 5, same data except 20 September 1980; 1 ad. 9(□), same data except 27 May 1981.

DIAGNOSIS

Decapauropus virgosus sp. n. may be close to *D. tenuis* Remy described from the Ivory Coast (1948b), then found to be a widespread tropical species, particularly in Africa but also occurring in South America, south Asia and Australia (Queensland). The two species can be distinguished by comparing the antennal globulus *g*, with thin stalk in *D. virgosus*, short and broad in *D. tenuis*; the pubescence of the bothriotricha T_1-T_4, ramose hairs, not simple, the posterior margin of pygidial tergum, almost straight, not with distinct rounded lobe, and the anal plate, short broad and with almost straight posterior margins, not longish with distinctly convex posterior margins.

DESCRIPTION

Adult male holotype (and paratypes)

Length: (0.49–)0.74 mm.

Head (Figure 44A): setae short–medium length, annulate blunt. Relative lengths of setae, 1st row: a_1 = 10, a_2 = (12–)13; 2nd row: a_1 = (11–)13, a_2 = (22–)23, a_3 = (14–)15; 3rd row: a_1 (paratypes only, one of the two a_1 absent in holotype) = (11), a_2 = (20–)23; 4th row: a_1 = 13, a_2 = (28–)35, a_3 = (19–)25, a_4 = 25(–27); lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 0.8(–0.9), 2nd row 0.6, 3rd row (paratype) (0.7), 4th row 0.9. Temporal organs ovoid in tergal view, 1.8(–2.2) times as long as shortest interdistance; small aperture in posterior part. Head cuticle glabrous. Posterior margin of head divided into three rounded lobes.

Antennae (Figure 44B): segment 4 with 4 subcylindrical, blunt, annulate setae, *p* thick, *r* straight; their relative lengths: p = 10, p' = 3, p'' = 2(–3), r = 6(–7). Tergal seta *p* (2.4–)2.6 times as long as tergal branch *t*. The latter branch fusiform, thickest in distal half, 1.4(–1.7) times as long as its greatest diameter and (0.7–)0.8(–0.9) of the length of sternal branch *s*, that branch 1.4(–1.6) times as long as its greatest diameter; anterodistal corner truncate. Seta *q* as *p* of 4th segment but thinner, (1.7–)1.9 times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 8(–9); F_2 = (29–)33, bs_2 = (4–)6; F_3 = (76–)87, bs_3 = (7–)9. F_1 (6.4–)6.8(–6.9) times as long as *t*, F_2 and F_3 (1.6–)1.7 and (4.2–)5.5 times as long as *s* respectively. Distal calyces helmet-shaped; distal part of flagella axes fusiformly widened below calyces. Globulus *g* almost spherical, (1.2–)1.3(–1.4) times as long as wide, stalk thin, 10(–13) bracts, capsule with flattened bottom; width of *g* 1.0(–1.1) times as long as greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 44C, D): setae of collum segment (Figure 44C) simple, subcylindrical, blunt, annulate; sublateral seta (2.9–)3.0 times as long as submedian seta; sternite process small, narrow anteriorly; appendages conical with somewhat flattened caps; process and appendages glabrous.

Setae on tergites as posteriomedian setae of head; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 44D) 0.4(–0.6) of interdistance and 0.5(–0.6) of the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figure 44E): relative lengths: T_1 = 100, T_2 = ?(100), T_3 = 100(–108), T_4 = (98–)110, T_5 = (130–)142); axes of T_1–T_4 many-branched, 7(–8) branches on T_1 and T_2, (8–)9 on T_3, 6 on T_4, each with ramose pubescence, T_3 (Figure 44E) also with ovoid end-swelling 0.1 of the length of bothriotrix and with pubescence as on branches (and in one paratype with two short pubescent branches); axes of T_5 simple with oblique pubescence of simple hairs.

Genital papillae (Figure 44F): short, as long as greatest diameter, conical glabrous, seta almost as long as papilla.

Legs (Figures 44G–I): setae on coxa of 9th pair of legs (Figure 44G) simple, on trochanter (Figure 44H) furcate, branches annulate, secondary branch of trochanter short. Corresponding setae simple on more anterior legs, also in male. Tarsus of 9th pair of legs (Figure 44 I) somewhat tapering, 3.0(–3.1) times as long as its greatest diameter. Setae subcylindrical, blunt, densely annulate, proximal seta 0.2(–0.3) of the length of tarsus and 0.6(–0.7) of the length of distal seta. Cuticle of tarsus sparsely pubescent.

Pygidium (Figures 44J, K).

Tergum: posterior margin between *st* almost straight. Relative lengths of setae: a_1 = 10, a_2 = (6–)7, a_3 = (11–)12(–14), *st* = 7(–8); *a*-setae almost straight, annulate, blunt, a_3 diverging, *st* clavate striate, also curved inward and converging. Distance a_1–a_1 as long as a_1; distance a_1–a_2 (2.0–)2.9 times as long as distance a_2–a_3; distance *st*–*st* (2.2–)2.6 times as long as *st* and 1.6(–1.7) times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 almost straight. Relative lengths of setae (pygidial a_1 = 10): b_1 = 30(–35), b_2 = 10(–14); setae cylindrical annulate–striate, b_2 curved inward, diverging; b_1 1.2(–1.5) times as long as interdistance; b_2 0.8(–1.0) of distance b_1–b_2.

Anal plate (Figures 44J, K) broadest in posterior half, about as broad as long, posteriolateral corners rounded, posterior margin (straight–)rounded, two clavate straight diverging appendages protruding backward from distal part of sternal side, appendages (0.6–)0.8(–0.9) of the length of plate. Plate glabrous, appendages striate.

ETYMOLOGY

From the Latin virgosus = full of twigs (referring to the branched bothriotricha T_1–T_4.

Genus *Juxtapauropus* Scheller, 2007

Juxtapauropus Scheller, 2007a: 62.

TYPE SPECIES

Scleropauropus (Scleropauropus) crinitus Remy, 1950a, by original designation.

Juxtapauropus dugdalei (Remy, 1956)

Scleropauropus (Scleropauropus) dugdalei Remy, 1956: 22–24, figure 5; Remy, 1957b: 144; Greenslade and Scheller, 2002: 22.

MATERIAL EXAMINED

Australia: *Western Australia*: 1 subad. 8(□), 11 km SE of Dwellingup, Murray River site, in soil, 25 July 1980; 1 ad. 9(□), same data except 20 September 1980; 1 ad. 9 □), same data except 11 December 1980; 2 juv. 5, same data except 25 March 1981; 2 juv. 6, 2 juv. 5, same data except 21 April 1981; 1 ad. 9(□), same data except 25 May 1981; 3 ad. 9(□, □, sex?), 1 juv. 5, same data except 29 June 1981; 1 ad. 9 □), same data except 11 December 1981.

DISTRIBUTION

Chile, Argentina; New Zealand. In Australia it is known from Western Australia, Gnangara and Dwellingup.

Juxtapauropus flexus sp. nov.

urn:lsid:zoobank.org:act:61CDACC2-804F-4333-96F9-EAE16403C875

Figure 45A–I

MATERIAL EXAMINED

Holotype

Australia: *Western Australia*: subad. 8(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 28 July 1981 (WAM T125578).

Paratype

Australia: *Western Australia*: 2 subad, 8(□), same data as holotype (WAM T125579).

DIAGNOSIS

Juxtapauropus flexus may be close to *J. dugdalei* (Remy) (see above) from which it is distinguished by the smaller temporal organs, length 0.6 of their shortest distance apart in *J. flexus*, as long as that distance in *J. dugdalei*, by the shape of the posteriomedian lobe of the pygidial sternum, evenly rounded, not with median incision, the shape of the anal plate, lateral margins straight, posterior appendages short and curved outward, not strongly convex and long directed posteriorly respectively.

DESCRIPTION

Subadult female holotype (and paratype)

Length: (0.63–)0.77 mm.

Head (Figure 45A): setae of tergal side of medium length, cylindrical, blunt, annulate. Relative lengths of setae (holotype only), 1st row: a_1 = 10, a_2 = 9; 2nd row: a_1 = 11, a_2 = 13, a_3 = 15; 3rd row: a_1 = 7, a_2 = 8; 4th row: a_1 = 11, a_2 = 20, a_3 = 14, a_4 = 15; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 1.1, 2nd row 0.6, 3rd row 1.0, 4th row 0.9. Temporal organs short, triangular in tergal view, their length 0.6 of shortest interdistance; in a depression in the cuticle in posterior half a short exterior vesicle. Head cuticle glabrous.

Antennae (Figures 45B, C): segment 4 with 6 cylindrical annulate setae, *p‴* rudimentary, their relative lengths: *p* = 10, *p′* = 6(–7), *p″* = 5(–6), *r* = 4, *u* = 1(–2). Tergal seta *p* (as long as –)1.2 times as long as tergal branch *t*. The latter branch subcylindrical, (3.5–)3.7 times as long as its greatest diameter and as long as sternal branch *s*, that branch (2.7–)2.9 times as long as its greatest diameter, anterodistal corner truncate. Seta *q* densely striate-annulate, (0.8–)0.9 of the length of *s*. Relative lengths of flagella (basal segments included)

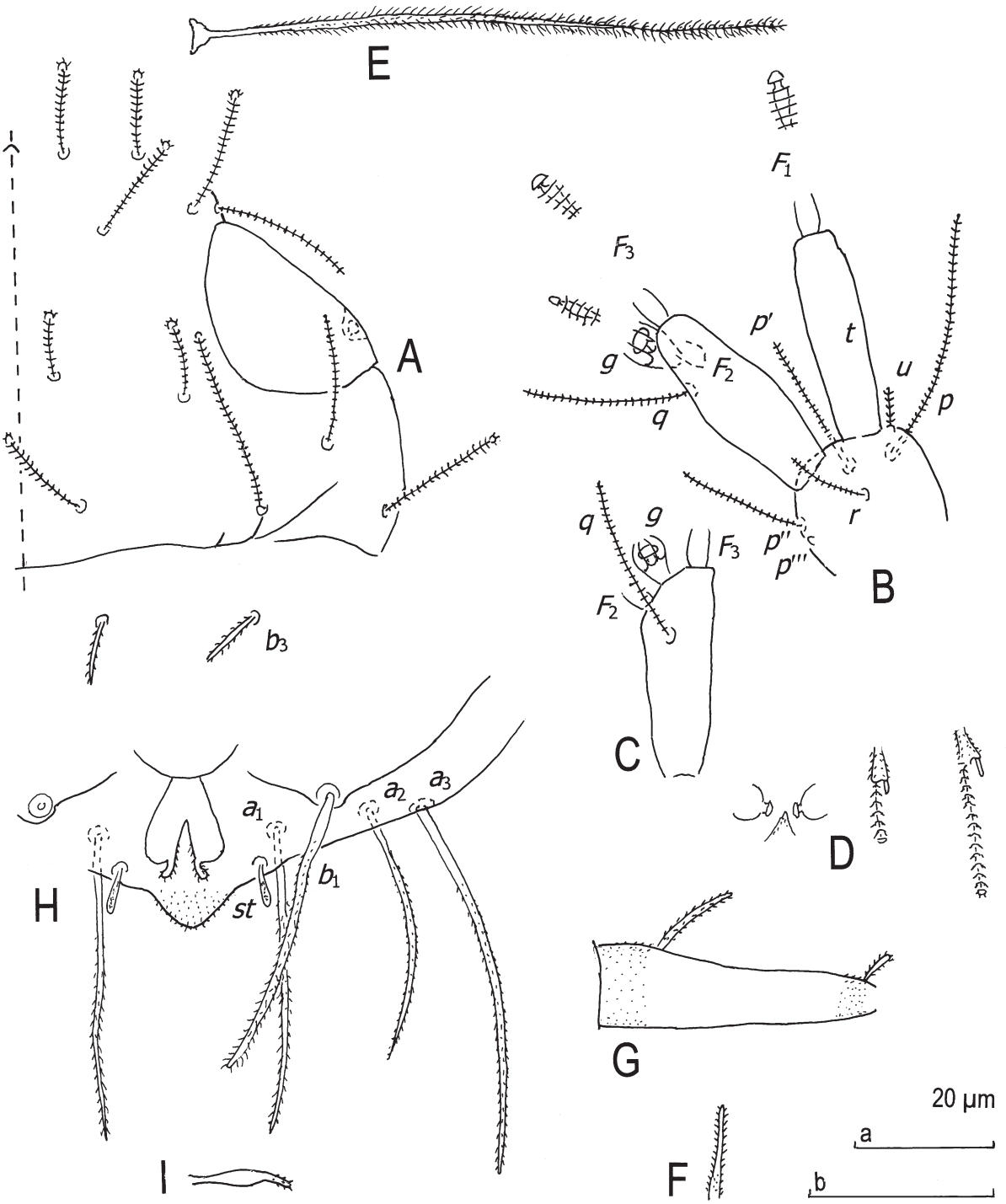

FIGURE 45 *Juxtapauropus flexus* sp. nov., subad. 8(□): A, head, median and right part, tergal view; B, left antenna, outer view; C, sternal antennal branch, sternal view; D, collum segment, median and left part, sternal view; E, T_3; F, seta on trochanter of leg 8; G, tarsus of leg 8; H, pygidium, posteriomedian and left part, sternal view; I, anal plate, lateral view. Pubescence only partly drawn in G. Scale a: Figures F, G; b: Figures A–E, H, I.

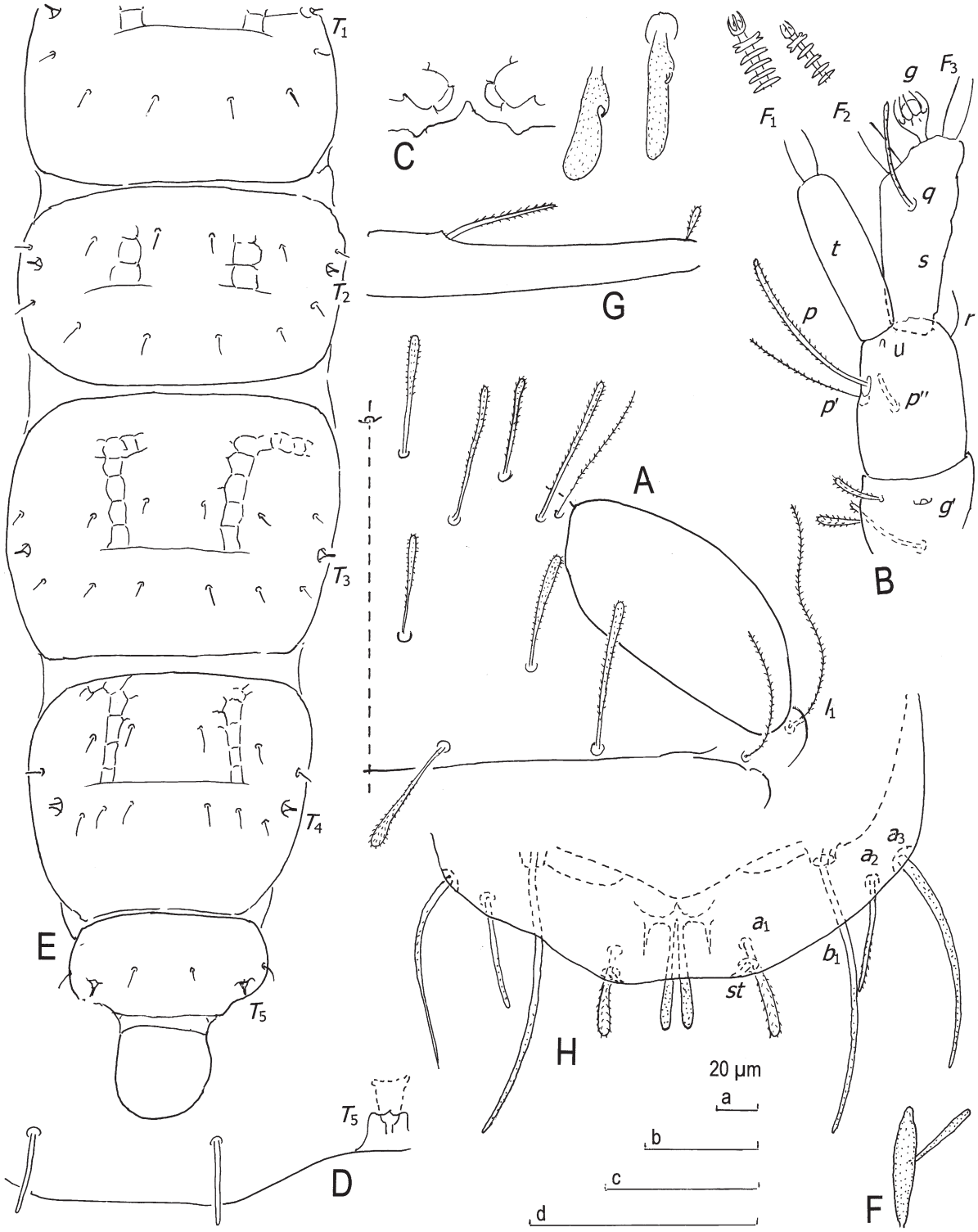

FIGURE 46 *Hemipauropus clava* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B, right antenna, tergal view; C, collum segment, median and left part, sternal view; D, posterior part of tergite VI; E, tergites II–VI and pygidium (setae of the latter not drawn); F, seta on trochanter of leg 9; G, tarsus of leg 9; H, pygidium, posterior part, tergal view. Scale a: Figure E; b: Figure G; c: Figures A–D, F; d: Figure H.

and basal segments: F_1 = 100, bs_1 = 9; F_2 = (48–)49, bs_2 = 7; F_3 = (98–)111, bs_3 = 9. F_1 2.2 times as long as *t*, F_2 and F_3 as long as (–1.1 times as long as) and 2.3 times as long as *s* respectively. Distal calyces helmet-shaped, distal part of flagella axes somewhat widened below calyces. Globulus *g* 1.3 times as long as wide, ≈7 bracts, capsule flattened; width of *g* (0.7–)0.8 of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figure 45D): setae of collum segment (Figure 45D) furcate, cylindrical, blunt; primary branch annulate, secondary branch rudimentary, glabrous. Sublateral setae 1.8 times as long as submedian ones; sternite process small triangular, pointed anteriorly; appendages subspherical with small flattened caps on distinct collar; process and appendages with minute pubescence.

Setae on anterior tergites as setae on the head, 4+4 setae on tergite I, 6+6 on II.

Bothriotricha (Figure 45E): relative lengths: T_1 = 100, T_2 = 107(–108), T_3 = (112–)113 (Figure 45E), T_5 = 143–149; axes simple, thin, straight. Pubescence hairs simple, oblique–erect, longest on distal halves of T_1 and T_2.

Legs (Figures 45F, G): setae on coxa and trochanter (Figure 45F) of leg 8 simple, densely pubescent. Tarsus of leg 8 (Figure 45G) distinctly tapering, 3.6(–3.9) times as long as its greatest diameter. Setae cylindrical, blunt, with short pubescence, proximal seta 0.3 of the length of tarsus and 2.6 times as long as distal seta. Cuticle of tarsus with short pubescence.

Pygidium (Figures 45H, I).

Tergum: posterior margin with large triangular median lobe behind a_1. Relative lengths of setae: a_1 = 10, a_2 = 9, a_3 = 12(–13), *st* = 1; *a*-setae tapering, with short pubescence, curved inward, *st* somewhat clavate and diverging, faintly pubescent. Distance a_1–a_1 0.6 of the length of a_1; distance a_1–a_2 twice longer than distance a_2–a_3; distance *st*–*st* (2.8–)3.0 times as long as *st* and (0.7–)0.8 of distance a_1–a_1.

Sternum: posterior margin between b_1 with deep indentation and small semi-circular round lobe below anal plate. Relative lengths of setae (pygidial a_1 = 10): b_1 = (9–)10, b_3 = 2; setae cylindrical blunt, with short pubescence, b_1 as long as interdistance, b_3 0.4(–0.5) of interdistance.

Anal plate (Figures 45H, I) horizontal, 1.2 times as long as broad, narrowest anteriorly, lateral sides almost straight, plate divided posteriorly by V-shaped incision into two broad branches with rounded posteriolateral corners; each posteriomedian corner with a short cylindrical appendage, the latter curved outward and somewhat downward and with short pubescence.

ETYMOLOGY

From the Latin flexus = bending, flexure (referring to the outward directed appendages of the anal plate).

Genus Kionopauropus Scheller, 2009

Kionopauropus Scheller, 2009a: 96.

TYPE SPECIES

Because type species was not designated in the genus description it is given below.

Kionopauropus sumatraensis Scheller, 2009.

REMARKS

The genus *Kionopauropus* was described by Scheller (2009a) from Indonesia and the Philippines (*K. sumatraensis, K. philippinensis* and *K. parabole*). Two earlier described species have also to be placed in this genus, *Allopauropus facetus* Remy, from Madagascar (Remy 1956d) and *A. lituiger* (Remy 1957b) from Western Australia.

Kionopauropus lituiger (Remy, 1957)

Allopauropus lituiger Remy 1957b: 141–143, figure 4; Greenslade and Scheller 2002: 7, 8.

Kionopauropus lituiger (Remy): Scheller 2011d: 20.

DISTRIBUTION

Western Australia, Kimberley. Not known outside Australia.

Genus Hemipauropus Silvestri, 1902

Hemipauropus Silvestri, 1902: 10, 65, and fascicle 96, number 3, plate 14.

TYPE SPECIES

Hemipauropus leptoproctus Silvestri, 1902 by original designation.

Hemipauropus clava sp. nov.

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Figure 46A–H

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*****:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 16 October 1980 (WAM T 125580).

Paratypes

Australia: ***Western Australia*****:** 1 ad. 9(□), same data as holotype except 18 February 1981 (WAM T 125581); 1 ad. 9(□), same data except in litter 15 April 1981 (WAM T 125582).

Non-types

Australia: ***Western Australia*****:** 1 juv. 6, same data except in soil, 18 March 1981; 1 subad. 8(□), same data except 22 September 1981.

DIAGNOSIS

The new species is well defined both by the shape of the submedian appendages of the anal plate, long thin straight claviform and separated by a deep narrow incision, and by a specific combination of other characters: all setae of 4th antennal segment are cylindrical and the setae on 3rd antennal segment are cylindrical–inconsiderably widened distally, antennal globulus *g* has a narrow stalk and the pygidial setae *st* are short and pointed. At present no close relatives can be designated.

DESCRIPTION

Adult female holotype (and paratypes)

Length: (0.61–)0.80 mm.

Head (Figure 46A): most tergal setae long thin, weakly clavate, with short pubescence, a_3 in 2nd row, a_3 and a_4 in 4th row and lateral group setae cylindrical, relative lengths of setae, 1st row: a_1 = 10, a_2 = (8–)10; 2nd row: a_1 = (10–)12(–13), a_2 = (13–)14, a_3 = (11–)13(–16); 3rd row: a_1 = 8(–11), a_2 = 10(–12); 4th row: a_1 = 10(–14), a_2 = 11(–12), a_3 = (10–)12, a_4 = ?(9–16); lateral group setae: l_1 = (19–)21, l_2 and l_3 = ?. Ratio a_1/a_1–a_1 in 1st row (1.4–)1.5, 2nd row (0.7–)0.8, 3rd row 1.3(–1.6), 4th row 0.8(–0.9). Temporal organs ovoid in tergal view, 0.7(–0.8) of their shortest interdistance. Head cuticle glabrous.

Antennae (Figure 46B): segment 3 with 3 setae, one cylindrical and two somewhat clavate, and rudimentary globulus *g′*. Segment 4 with 5 thin cylindrical blunt setae, *p* thickest, *r* very thin, *u* rudimentary; their relative lengths: *p* = 10, *p′* = (7–)8, *p″* = 2, *r* = 3. Tergal seta *p* 1.0(–1.1) times as long as tergal branch *t*. The latter branch somewhat fusiform, (2.7–)3.1 times as long as its greatest diameter and 0.9 of the length of sternal branch *s*, that branch (2.3–)2.4 times as long as its greatest diameter; anterodistal corner of *s* distinctly truncate. Seta *q* as *p* of 4th segment but thinner, 0.6(–0.7) of the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 11(–13); F_2 = (51–)54(–56), bs_2 = 10(–12); F_3 = 101(–111), bs_3 = (13–)14. F_1 (2.5–)2.7(–2.9) times as long as *t*, F_2 and F_3 (1.3–)1.4 and 2.4(–2.7) times as long as *s* respectively. Distal organs of flagella a few bracts surrounding a small subspherical capsule; distal part of flagella axes not widened below calyces. Globulus *g* with 8(–9) bracts, (1.3–)1.4 times as long as wide; width of *g* 0.7 of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 46C-E): setae of collum segment (Figure 46C) furcate, main branch broad blunt, secondary branch rudimentary glabrous; sublateral setae 1.2 times as long as submedian setae; sternite process broad with small blunt anterior extension; appendages barrel-shaped, caps with collar; setae, process and appendages minutely pubescent.

Setae on tergites cylindrical, inconsiderably lengthening posteriorly; 4+4 setae on tergite I, 6+6 on II–V, 4 on VI. Submedian posterior setae on VI (Figure 46D) 0.4(–0.5) of interdistance and about as long as pygidial setae a_1. Tergites glabrous, on anterior half of II–V with reticular pattern in the cuticle just outside submedian setae, most meshes on III–IV (Figure 46E).

Bothriotricha: relative lengths: T_1 = 100, T_2 = 102(–135), T_3 = 111(–114), T_4 = 120(–137), T_5 = (156–)160(–207); axes thin and with short pubescence.

Legs (Figures 46F, G): setae on coxa and trochanter (Figure 46F) of leg 9 furcate, main branch lanceolate (–folioform), secondary branch thin weakly clavate and inserted at the middle of main branch. Corresponding setae on more anterior legs with rudimentary secondary branch. Tarsus of leg 9 (Figure 46G) slender tapering, (4.5–)5.0 times as long as its greatest diameter. Setae with short pubescence, proximal seta cylindrical tapering, 0.4 of the length of tarsus and (3.8–)4.4 times as long as clavate distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 46H).

Tergum: posterior margin rounded but almost straight between *st*. Relative lengths of setae: a_1 = 10, a_2 = 10(–15), a_3 = 18(–28), *st* = 2(–4); setae curved inward, *a*-setae with short pubescence, a_1 thick cylindrical, a_2 cylindrical (–tapering), a_3 tapering, *st* very short, glabrous, converging. Distance a_1–a_1 (1.6–)1.9 of the length of a_1; distance a_1–a_2 3 times longer than distance a_2–a_3; distance *st*–*st* 4(–6) times longer than *st* and (0.8–)1.0 of the length of distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with large triangular lobe. Relative lengths of setae (pygidial a_1 = 10): b_1 = 25(–40). The b_1 cylindrical, somewhat tapering, with minute pubescence distally, 1.0(–1.2) times as long as interdistance.

Anal plate (Figure 46H) with broad base having two thin posteriorly directed lateral spines and a posteriomedian forked appendage; branches of the latter long straight thin clavate and minutely pubescent.

ETYMOLOGY

A noun from the Latin clava = club (referring to the club-shaped appendages of the anal plate).

Genus Stylopauropus Cook, 1896

Stylopauropus Cook 1896: 29, 31.

TYPE SPECIES

Pauropus pedunculatus Lubbock, 1867, by subsequent designation of Cook, 1896.

Stylopauropus brito Remy, 1938

Stylopauropus pedunculatus var. *brito* Remy, 1938: 156, 157, figure 1.

Stylopauropus brito Remy: Remy, 1949: 53.

DISTRIBUTION

Victoria. Melbourne. Known also from: U.S.A.; Denmark, Great Britain, France, Switzerland, Morocco, Algeria, Azores.

Stylopauropus pedunculatus (Lubbock, 1867)

Pauropus pedunculatus Lubbock, 1867: 185, plate 10, figure 20.

Stylopauropus pedunculatus (Lubbock, 1867): Remy, 1949: 53.

DISTRIBUTION

Victoria, Melbourne.

Stylopauropus pedunculatus is a widely distributed species, particularly in Europe, known from: Canada, U.S.A.; Norway, Sweden, Finland, Denmark, Great Britain, Belgium, Germany, Poland, France, Switzerland, Austria, Czech Republic, Slovakia, Portugal, Spain, Italy, Romania, Bulgaria, Slovenia, Bosnia and Herzegovina, Serbia, Spain, Greece; Morocco, Canary Islands, Algeria, Azores; Japan, ?Vietnam.

Genus Stylopauropoides Remy, 1956

Stylopauropoides Remy, 1956b: 213

TYPE SPECIES

Stylopauropus tiegsi Remy, 1949, by subsequent designation of Remy 1956b: 213.

Stylopauropoides blastema sp. nov.

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Figure 47A–I

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*****:** ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 18 February1981 (WAM T 125583).

Paratypes

Australia: ***Western Australia*****:** 4 ad. 9(2□, 2□), same data as holotype (WAM T125584); 10 ad. 9(6□, 4□), 1 subad. 8(□), 1 juv. 5, same data as holotype except 15 October 1980 (WAM T125585).

Non-types

Australia: ***Western Australia*****:** 4 ad. 9(2□, 2□), 1 subad. 8(□), 9 juv. 6, 7 juv. 5, 13 juv. 3, Yarragil Brook site, same data except in soil, 18 July 1980; 3 juv. 3, same data except 20 July 1980; 3 ad. 9(2□, 1□), 17 subad. 8(12□, 5□), 24 juv. 6, 12 juv. 5, 14 juv. 3, Murray River site, 25 July 1980; 1 ad. 9(□), Yarragil Brook site, 11 August 1980; 1 ad. 9(□), 3 subad. 8(1□, 2□), 6 juv. 5, same data except 18 August 1980; 5 ad. 9(2□, 3□), 13 subad. 8(6□, 7□), 15 juv. 6, 9 juv. 5, 12 juv. 3, Murray River site, 18 August 1980; 3 ad. 9(1□, 2□), 4 juv. 6, 3 juv. 5, Yarragil Brook site, 14 September 1980; 23 ad. 9(14□, 9□), 9 subad. 8(3□, 6□), 2 juv. 6, 3 juv. 5, Murray River site, 15 September 1980; 11 ad. 9(9□, 2□), 26 subad. 8(11□, 15□), 20 juv. 6, 9 juv. 5, 6 juv. 3, same data except 20 September 1980; 4 ad. 9(2□, 2□), 4 subad. 8(1□, 3□), 6 juv. 6, 4 juv. 5, Yarragil Brook site, 16 October 1980; 7 ad. 9(3□, 4□), 8 subad. 8(2□, 6□), 7 juv. 6, 3 juv. 5, Murray River site, 18 October 1980; 3 ad. 9(2□, 1□), 1 subad. 8(□), 2 juv. 6, same data except 23 October 1980; 4 ad. 9(1□, 3□), 12 subad. 8(4□, 7□), 7 juv. 6, same data except 24 October 1980; 1 subad. 8(sex?), Yarragil Brook site, 10 December 1980; 1 ad. 9(□), 3 juv. 6, same data except 11 December 1980; 1 ad. 9(□), same data except 11 December 1980; 1 ad. 9(□), same data except in litter, 25 January 1981; 1 ad. 9(□), 6 juv. 5, same data except 15 April 1981; 1 ad. 9(□), 3 juv. 5, same data except 14 July 1981; 3 ad. 9(1□, 2□), 1 subad. 8(□), 2 juv. 6, same data except 21 July 1981; 2 ad. 9(□, □), 2 juv. 6, 2 juv. 5, 3 juv. 3, same data except 29 July 1981; 1 ad. 9(□), same data except 12 January 1981; 2 ad. 9(□, □), 1 juv. 6, 1 juv. 5, 2 juv. 3, Yarragil Brook site, 19 January 1981; 9 ad. 9(5□, 4□), 1 juv. 6, same data except 18 February 1981; 1 subad. 8(□), 1 juv. 6, 1 juv. 3, Murray River site, 25 February 1981; 10 ad. 9(4□, 6□), 4 juv. 5, 1 juv. 3, Yarragil Brook site, 18 March 1981; 1 ad. (□), 2 juv. 5, same data except 25 March 1981; 6 ad. 9(3□, 3□), 1 juv. 6, 7 juv. 5, 3 juv. 3, same data except 15 April 1981; 1 ad. 9(□), 5 juv. 5, same data except 18 April 1981; 4 ad. 9(5□, 1□), 6 juv. 6, 7 juv. 5, 7 juv. 3, same data except 21 April 1981; 1 ad. 9(□), 2 juv. 6, 1 juv. 5, same data except 27 June 1981; 13 ad. 9(4□, 9□), 4 subad. 8(4□), 11 juv. 6, 14 juv. 5, 11 juv. 3, Yarragil Brook site, 19 May 1981; 3 ad. 9(1□, 2□), 2 subad. 8(□, □), 3 juv. 5, 3 juv. 3, Murray River site, 25 May 1981; 20 ad. 9(12□, 8□), 6 subad. 8(2□, 4□), 15 juv. 6, 33 juv. 5, 28 juv. 3, same data except 27 May 1981; 3 juv. 6, 2 juv. 5, Yarragil Brook site, 22 June 1981; 1 ad. 9(□), 2 juv. 6, 2 juv. 5, same data except 28 June 1981; 3 ad. 9(□), 4 subad. 8(2□, 2□), 9 juv. 6, 6 juv. 5, 7 juv. 3, Murray River site, 29 June 1981; 1 ad. 9(□), 1 juv. 5, 2 juv. 3, Yarragil Brook site, 22 June 1981; 2 ad. 9(□, sex?), 3 subad. 8(2□, 1□), Murray River site, 28 July 1981; 2 ad. 9(□), 3 juv. 6, 3 juv., 5, 8 juv. 3, same data except 25 August 1981; 1 ad(□), 2 subad. 8(□), 1 juv. 6, 1 juv. 5, Yarragil Brook site, 26 August 1981; 1 ad. 9(□), 1 subad. 8(□), 4 juv. 6, 4 juv. 5, same data except 31 August 1981; 2 subad. 8(□), same data except 14 September 1981; 6 ad. 9(2□,4□), 6 subad. 8(3□, 3□), 5 juv. 6, 6 juv. 5, 9 juv. 3, same data except 21 September 1981; 4 ad. 9(3□, 1□), 9 subad. 8(7□, 2□), 5 juv. 6, 2 juv. 5, 1 juv. 3, same data except 22 September 1981; 10 ad. 9(2□,8□), 11 subad. 8(5□,6□), 16 juv. 6, 8 juv. 5, 6 juv. 3, same data except 29 September 1981.

DIAGNOSIS

Stylopauropoides blastema has many characters in common with *S. quadripartitus* Scheller from Tasmania (Scheller 2009b) but can be distinguished from it by the shape of the anal plate, with evenly tapering branches having one outer secondary process in *S. blastema*, truncated with short inner extension and having two secondary processes, one outer and one inner.

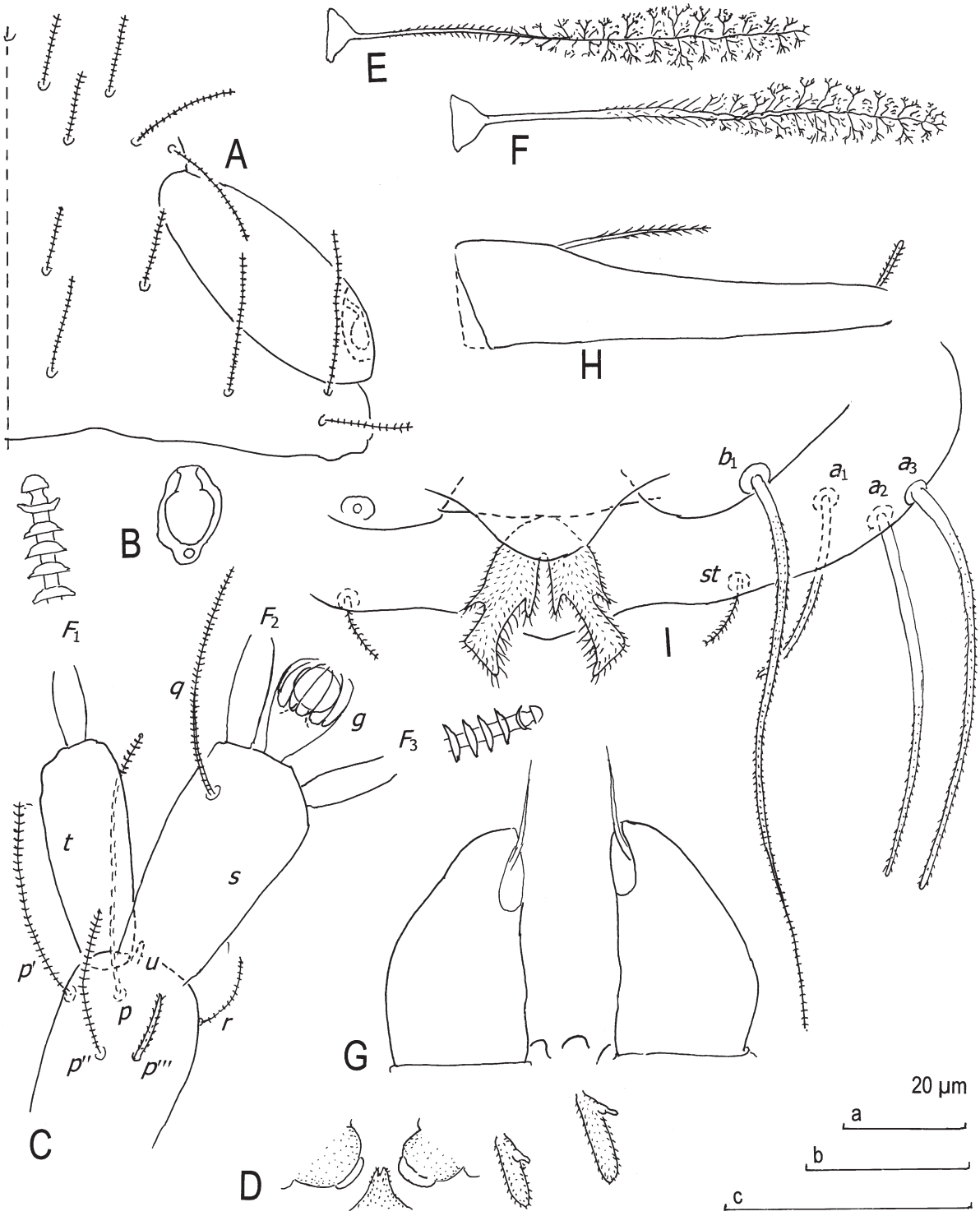

FIGURE 47 *Stylopauropoides blastema* sp. nov., holotype ad. 9(□): A, head, median and right part, tergal view; B, pistil and posterior pore, outer view; C, left antenna, sternal view; D, collum segment, median and left part, sternal view; E, T_2; F, T_3; G, genital papillae, anterior view; H, tarsus of leg 9; I, pygidium, sternal view. Scale a: Figure A; b: Figures E, F; c: Figures D, G, H: d: Figures B, C, I.

DESCRIPTION

Adult male holotype (and paratypes)

Length: (0.81–)1.05(–1.11) mm.

Head (Figures 47A, B): setae cylindrical, striate, submedian ones on the tergal side of medium length, some sublateral and lateral setae longest. Relative lengths of setae, 1st row: a_1 = 10, a_2 = (10–)11; 2nd row: a_1 = 10(–12), a_2 = (14–)16(–17), a_3 = 17(–20); 3rd row: a_1 = 9(–11), a_2 = (10–)11(–13); 4th row: a_1 = 13(–16), a_2 = 19(–23), a_3 = (20–)21(–24), a_4 = 12(–13); lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 1.1, 2nd row (0.5–)0.6, 3rd row 0.9(–1.1), 4th row 1.2(–1.3). Temporal organs in tergal view ovoid, their length as long as their shortest distance apart, in posterior half a clavate, exterior, curved vesicle (Figure 47A, B) attached with its narrow anterior end and lying in a depression in the cuticle, length 0.2 of the length of temporal organ; small pore near base of l_1. Head cuticle glabrous.

Antennae (Figure 47C): segment 4 with 6 cylindrical, blunt, annulate–striate setae, *u* rudimentary; their relative lengths: *p* = 10, *p′* = (6–)7(–8), *p″* = 4(–5), *p‴* = 2(–3), *r* = 3. Tergal seta *p* 1.3 times as long as tergal branch *t*. The latter branch fusiform, (2.5–)2.6(–2.9) times as long as its greatest diameter and (0.8 of the length of –) as long as sternal branch *s*, that branch 2.0(–2.2) times as long as its greatest diameter; posterodistal corner somewhat more truncate than anterodistal one. Seta *q* densely annulate–striate, (0.9–)1.0(–1.5) times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = (12–)14(–15); F_2 = (83–)88(–96), bs_2 = 14(–16); F_3 = (72–)82(–84), bs_3 = (13–)16. F_1 (2.4–)2.5(–2.7) times as long as *t*, F_2 and F_3 (1.9–)2.0 and 1.9(–3.1) times as long as *s* respectively. Distal calyces helmet-shaped, distal part of flagella axes not widened. Globulus *g* 1.4(–1.7) times as long as wide, ≈11 bracts, capsule spherical; width of *g* 0.7(–0.8) of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figure 47D): setae of collum segment furcate, primary branch folioform with short oblique pubescence, secondary branch rudimentary, cylindrical, glabrous. Sublateral setae 1.2(–1.3) times as long as submedian ones; sternite process triangular, incised anteriorly; appendages low and wide with flattened caps; process with short pubescence, appendages with delicate pubescence.

Setae on anterior tergites as setae on the head, 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (0.4–)0.5 of interdistance and (1.5–)1.7 times as long as pygidial setae a_1.

Bothriotricha (Figures 47E, F): relative lengths: T_1 = 100, T_2 = (78–)97(–113) (Figure 47 E), T_3 = 96(–108), T_4 = 116(–127), T_5 = (149–)157(–174); axes simple thin straight, except in proximal half of T_3 there being moderately thickened (Figure 47F). Pubescence hairs on T_5 very short simple, on proximal halves of T_1–T_4 stronger oblique, increasing in length outward and on distal half long ramose whorled and almost erect.

Genital papillae (Figure 47 G): conical, inner side straight, 2.0(–2.1) times as long as wide, glabrous; seta thin, 0.5 of the length of papilla.

Legs (Figure 47H): setae on coxa and trochanter of leg 9 furcate, densely pubescent, main branch leaf-shaped, secondary branch clavate, protruding from near the middle of the primary branch**.** Corresponding setae on more anterior legs with proportionately broader main branch and rudimentary, glabrous, secondary branch. Tarsus of leg 9 (Figure 47H) strongly tapering, (3.6–)4.1(–4.4) times as long as its greatest diameter. Setae with oblique pubescence, proximal one tapering pointed, distal one cylindrical blunt. Proximal seta 0.4 of the length of tarsus and (2.7–)2.9(–3.1) times as long as distal seta. Cuticle of tarsus almost glabrous.

Pygidium (Figure 47 I).

Tergum: posterior margin rounded with low median bulge above anal plate. Relative lengths of setae: a_1 = 10, a_2 = (18–)19, a_3 = (22–)25, *st* = 3(–4); setae curved inward, *a*-setae tapering, with short pubescence distally, *st* cylindrical striate; a_1 and *st* somewhat converging. Distance a_1–a_1 (2.7–)3.0 times as long as a_1; distance a_1–a_2 as long as (–1.5 times as long as) distance a_2–a_3; distance *st*–*st* (5.6–)6.6(–6.7) times as long as *st* and (0.6–)0.7 of distance a_1–a_1.

Sternum: posterior margin above anal plate with deep indentation and broad median triangular lobe, rounded posteriorly. Relative lengths of setae (pygidial a_1 = 10): b_1 = (26–)29; setae thin tapering, with short pubescence and striate distally, 1.3 times as long as interdistance.

Anal plate with strong pubescence (Figure 47 I) directed obliquely upward, about as broad as long; divided longitudinally into two broad branches each with two short and most often pointed secondary processes, one on outer side, one on inner side (the short inner process weakly developed in a few specimens); main branches cut squarely and with small extension inward at the end.

ETYMOLOGY

From the Greek blastos = bud, sprout (referring to the processes on the branches of the anal plate).

Stylopauropoides bornemisszai Remy, 1957

Stylopauropoides bornemisszai Remy 1957b: 136–138, figure 1; Greenslade and Scheller 2002: 23, 24.

MATERIAL EXAMINED

Australia: ***Western Australia*****:** Dwellingup, Yarragil Brook site, in litter, 1 ad. 9(□), 15 September 1980; 3 ad. 9(□), Murray River site, 21 September 1980; 1 ad. 9(□), Yarragil Brook site, 23 October 1980; 1 ad. 9(□), Murray River site, 24 October 1980; 1 ad. 9(□), 1 subad. 8(□), Yarragil Brook site, 11 December 1980; 53 ad. 9(10□,43□), 5 subad. 8(5□), 20 juv. 6, 6 juv. 5, 4 juv. 3, Murray River site, 15 April 1981; 31 ad. 9(5□, 26□), 1 subad. 8(□), 9 juv. 6, 3 juv. 5, Yarragil Brook site, 19 May

1981; 5 ad. 9(1□,4□), 2 subad. 8(□), Murray River site, 28 May 1981; 30 ad. 9(3□, 27□), 12 subad. 8(4□,8□), 6 juv. 6, 3 juv. 5, 19 juv. 3, Yarragil Brook site, 22 June 1981; 16 ad. 9(6□, 10□), 12 subad. 8(3□,9□), 2 juv. 6, 6 juv. 3, same data except 20 July 1981; 2 ad. 9(□), 2 subad.8(□), Murray River site, 28 July 1981; 1 ad.9(□), 1 subad.8(□), 2 juv. 3, same data except 29 July 1981; 1 ad. 9(□), same data except 25 August 1981; 4 ad. 9(1□, 3□), 1 juv. 5, Yarragil Brook site, 31 August 1981; 3 ad. 9(□), same data except 22 September 1981; 1 ad. 9(□), 1 juv, 5, Murray River site, 28 September 1981; 18 ad. 9(8□, 10□), 13 subad. 8(1□, 12□), 7 juv. 6, 2 juv. 5, 27 juv. 3, Yarragil Brook site, in soil, 18 July 1980; 4 ad. 9(□), 1 subad. 8(□), 2 juv. 5, 8 juv. 3, same data except 20 July 1980; 54 ad. 9(33□, 21□), 27 subad. 8(11□, 16□), 21 juv. 6, 32 juv. 5, 45 juv. 3, Murray River site, 25 July 1980; 13 ad. 9(3□, 10□), 1 subad. 8(□), Yarragil Brook site, 11 August 1980; 42 ad. 9(18□, 24□), 27 subad. 8 (3□, 24□), 36 juv. 6, 47 juv. 5, 50 juv. 3, same data except 18 August 1980; 13 ad. 9(4□,9□), 5 subad. 8(□), 1 juv. 6, 5 juv. 5, 11 juv. 3, same data except 14 September 1980; 5 ad. 9(1□, 3□, 1 sex?), 4 subad. 8(1□, 3□), 9 juv. 6, 6 juv. 5, 9 juv. 3, same data except 15 September 1980; 10 ad. 9(4□,6□), 9 subad. 8(5□,4□), 14 juv. 6, 11 juv. 5, 17 juv. 3, Murray River site, 20 September 1980; 1 ad. 9(□), 1 juv. 6, same data except 21 September 1980; 3 ad. 9(□), 4 juv. 6, 6 juv. 5, 5 juv. 3, same data except 15 October 1980; 7 ad. 9(1□,6□), 3 subad. 8(1□, 2□), 13 juv. 6, 8 juv. 5, 3 juv. 3, Yarragil Brook site, 16 October 1980; 1 ad. 9(□), 1 subad. 8(□), 8 juv. 6, 3 juv. 5, 3 juv. 3, Murray River site, 18 October 1980; 10 ad. 9(1□, 8□, 1 sex?), 3 subad. 8(2□, 1□), 26 juv. 6, 16 juv. 5, 15 juv. 3, same data except 23 October 1980; 1 subad. 8(□), 4 juv. 6, same data except 11 December1980; 3 subad. 8(2□, 1□), Yarragil Brook site, 12 January 1981; 2 ad. 9(□), 3 subad. 8(□), 3 juv. 6, same data except 18 February 1981; 1 juv. 6, 2 juv. 5, Murray River site 25 February 1981; 2 ad. 9(□), 1 juv. 6, Yarragil Brook site, 18 March 1981; 2 juv. 3, Murray River site, 25 March 1981; 7 ad. 9(2□,5□), 3 subad. 8(1□, 2□), 6 juv. 6, 2 juv. 3, same data except 15 April 1981; 3 ad. 9(□), same data except 18 April 1981; 23 ad. 9(14□, 9□), 2 subad. 8(□), 7 juv. 6, 12 juv. 5, 4 juv. 3, same data except 21 April 1981; 14 ad. 9(8□,6□), 16 subad. 8(2□, 14□), 9 juv. 6, 4 juv. 5, 9 juv. 3, 25 May 1981; 9 ad. 9(2□,7□), 13 subad. 8(6□,7□), 5 juv. 6, 4 juv. 5, 6 juv. 3, Yarragil Brook site, 23 June 1981; 1 ad. 9(□), 1 subad. 8(□), 2 juv. 6, 2 juv. 5, same data except 28 June 1981; 17 ad. 9(13□, 3□, 1 sex?), 7 subad. 8(1□,6□), 6 juv. 6, 6 juv. 5, 10 juv. 3, Murray River site, 29 June 1981; 14 ad. 9(2□, 12□), 8 subad. 8(3□,5□), 5 juv. 6, 9 juv. 5, 6 juv. 3, same data except 28 July 1981; 6 ad. 9(3□, 3□), 5 subad. 8(2□, 3□), 4 juv. 6, 3 juv. 5, 8 juv. 3, same data except 25 August 1981; 7 ad. 9(2□,5□), 1 subad. 8(□), 1 juv. 5, Yarragil Brook site, 26 August 1981; 14 ad. 9(2□, 12□), 3 subad. 8(1□, 2□), 6 juv. 6, 4 juv. 5, 3 juv. 3, same data except 31 August 1981; 1 ad. 9(□), 5 juv. 3, same data except 14 September 1981; 2 ad. 9(□, □), 3 juv. 5, 3 juv. 3, same data except 15 September 1981; 12 ad. 9(5□,7□), 7 subad. 8(4□, 3□), 9 juv. 6, 9 juv. 5, 10 juv. 3, Murray River site, 21 September 1981; 5 ad. 9(1□,4□), 2 subad. 8(□), 4 juv. 5, 6 juv. 3, Yarragil Brook site, 22 September 1981; 10 ad. 9(1□,9□), 1 subad. 8(□), 3 juv. 6, 5 juv. 5, 13 juv. 3, same data except 29 September 1981; 6 ad. 9(6□), 1 juv. 6, 5 juv. 5, 3 juv. 3, same data except 29 December 1981.

DISTRIBUTION

Western Australia, Gnangara and Dwellingup.

REMARKS

The most common species at Dwellingup, occurring more in litter than other species.

Stylopauropoides dendrodes sp. nov.

urn:lsid:zoobank.org:act:90A28945-0E21-433A-9585-BFA53D42B6C0

Figure 48A–J

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, litter, 21 July 1981 (WAM T125586).

DIAGNOSIS

Stylopauropoides dendrodes sp. nov. seems to be related to *S. eximiformis* sp. nov. described below but can easily be distinguished from it by the shape of the two first pairs of bothriotricha, polyramose in *S. dendrodes*, axes simple in *S. eximiformis*, the tergal antennal branch, 2.5 times as long as its greatest diameter, not 3.3–4.0, the shape of the antennal globulus *g*, long-stalked, not short-stalked, and the shape of the anal plate, posterior cleft V-shaped, not U-shaped, appendages cylindrical and attached distally, not clavate and protruding from sternal side. The new species may also be connected to *S. delamarei* (Remy) from the Ivory Coast (Remy 1948b) and Guinea (Remy 1959a) but all the bothriotricha in that species are simple and the anal plate is different, V-shaped posterior incision and striate appendages, not U-shaped and glabrous.

DESCRIPTION

Adult male holotype.

Length: 0.60 mm.

Head (Figure 48A): tergal setae of medium length, densely striate, anterior and submedian ones somewhat clavate, sublateral and lateral ones cylindrical. Relative lengths of setae, 1st row: $a_1 = 10$, $a_2 = 9$; 2nd row: $a_1 = 10$, $a_2 = 16$, $a_3 = ?$; 3rd row: $a_1 = 9$, $a_2 = 11$; 4th row: $a_1 = 11$, $a_2 = a_3 = 21$, $a_4 = 12$. Ratio a_1/a_1–a_1 in 1st and 4th rows 1.1, 2nd row 0.7, 3rd row 0.9. Temporal organs ovoid in tergal view, length 0.9 of their shortest interdistance; an inner and posteriorly directed vesicle in posterior part inside margin at level of l_1, length of vesicle 0.2 of the length of temporal organs. Head cuticle glabrous.

Antennae (Figure 48B): segment 4 with 4 cylindrical, densely striate setae, *r* not studied; their relative lengths:

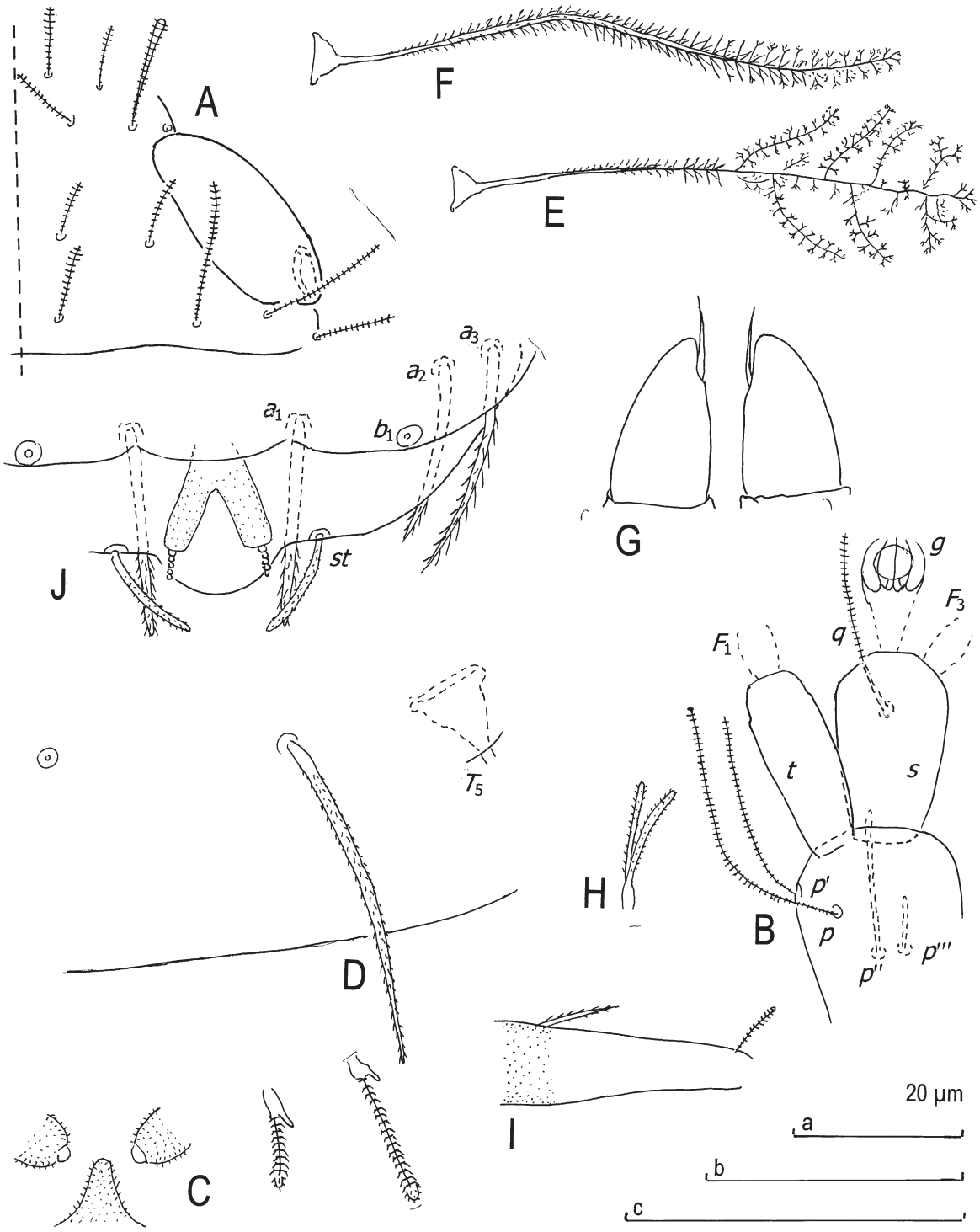

FIGURE 48 *Stylopauropoides dendrodes* sp. nov., holotype ad. 9(□): A, head, posteriomedian and right part, tergal view; B, right antenna, tergal view; C, collum segment, median and left part, sternal view; D, tergite VI, posterior part; E, T_1; F, T_3; G, genital papillae, anterior view; H, seta on coxa of leg 9; I, tarsus of leg 9; J, pygidium, sternal view. Pubescence only partly drawn in I. Scale a: Figures A, E, F, I; b: Figures B, C, G, H; c: Figures D, J.

p = 10, p' = 7, p'' = 5, p''' = 2. Tergal seta p 1.6 times as long as the length of tergal branch *t*. The latter branch fusiform, 2.5 times as long as its greatest diameter and 0.9 of the length of sternal branch *s*, that branch somewhat clavate, 1.7 times as long as its greatest diameter; posterodistal and anterodistal corners equally truncate. Seta *q* cylindrical, densely striate, somewhat thinner than *p* and *p'*, as long as *s*. Flagella lacking. Globulus *g* pyriform, 1.8 times as long as wide; capsule spherical; width of *g* 0.9 of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 48C, D): setae of collum segment (Figure 48C) furcate, subcylindrical, blunt, annulate, secondary branch rudimentary, glabrous. Sublateral setae 1.7 times as long as submedian setae; sternite process blunt anteriorly; appendages roundly conical with small subhemispherical caps; process and appendages distinctly pubescent.

Setae on anterior tergites subcylindrical, blunt, annulate, on posterior tergites lengthened and tapering and with distinct oblique pubescence; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 48D) long tapering, 1.6 times as long as interdistance and 1.8 times as long as pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures 48E, F): relative lengths: T_1 = 100, T_2 = 98, T_3 = 113, T_4 = 137, T_5 = 181; axes simple except in distal halves of T_1 and T_2, the latter two polyramose (Figure 48E), branches long, curved; T_3 and T_4 with thicker axes in proximal half, pubescence of strong, simple, oblique hairs on T_4 and proximal 2/3 of T_3, distal part of the latter with branched pubescence (Figure 48F); branched parts of T_1 and T_2 with ramose pubescence.

Genital papillae (Figure 48G): glabrous, 1.6 times as long as greatest diameter, conical, rounded distally, seta 0.5 of the length of papilla.

Legs (Figures 48H, I): setae on coxa (Figure 48H) and trochanter of leg 9 furcate, densely pubescent, branches of the same length, cylindrical blunt, secondary branch thin in seta on trochanter; corresponding setae on more anterior legs with rudimentary, secondary branch. Tarsus of leg 9 tapering (Figure 48 I) 3.2 times as long as its greatest diameter. Proximal seta tapering, pointed, with short pubescence, distal seta cylindrical, blunt, striate. Proximal seta 0.3 of the length of tarsus and 1.6 times as long as distal seta. Tarsus with faint pubescence.

Pygidium (Figure 48J).

Tergum: posterior margin straight with semi-circular lobe between *st*. Relative lengths of setae: a_1 = 10, a_2 = 8, a_3 = 11, *st* = 5; *a*-setae strong tapering, with oblique pubescence, $a_1$cylindrical straight, a_2 and a_3 tapering, somewhat curved inward and converging, *st* cylindrical, blunt, faintly pubescent, curved inward, converging. Distance a_1–a_1 0.8 of the length of a_1, distance a_1–a_2 3 times longer than distance a_2–a_3; distance *st*–*st* 2.0 times longer than *st* and 1.2 times as long as distance a_1–a_1. Tergum glabrous.

Sternum: posterior margin between b_1 with low median bulge. Relative lengths of setae (pygidial a_1 = 10): b_1>15; setae cylindrical, blunt, with short pubescence.

Anal plate (Figure 48J) V-shaped, as long as broad, branches with parallel sides and almost square ends, each with a short, cylindrical, blunt, annulate appendage protruding backward, length of appendage 0.3 of the length of plate, the latter with granular surface.

ETYMOLOGY

From the Greek dendrodes = tree-like (referring to the appearance of the bothriotricha T_1 and T_2).

Stylopauropoides erectus Scheller, 2009

Stylopauropoides erectus Scheller 2009b: 309–312, figures 105–116.

DISTRIBUTION

Tasmania, in the north: Saxons Creek; in the northwest: Savage River, Bradshaws Road and Cradle Mountain; in the northeast: Mt Victoria, Mt Michael and Simons Creek; in the southeast: Big Sassy Creek and Tasman Peninsula. Not known outside Australia.

Stylopauropoides eximiformis sp. nov.

urn:lsid:zoobank.org:act:6933BC95-4459-4871-A6CD-89479CEE75BC

Figures 49A–L, 50A–E

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*:** ad. 9(□), c. 11 km SSE of Dwellingup, Murray River site, in soil, 25 February 1981 (WAM T125587).

Paratypes

Australia: ***Western Australia*:** 1 ad. 9(□), same data as holotype (WAM T125588); 2 ad. 9(□, □), same data except in litter, 25 February 1981 (WAM T125589).

Non-types

Australia: ***Western Australia*:** same data, in litter, 2 juv. 6, 3 October 1980; 18 subad. 8(5□, 13□), 13 juv. 6, 4 juv. 5, 2 juv. 3, Yarragil Brook site, 11 December 1980; 1 ad. 9(□), 31 January 1981; 14 ad. 9(2□, 12□), 14 subad. 8(3□, 11□), 18 February 1981; 1 ad. 9(□), 1 juv. 5, 19 February 1981; 2 ad. 9(□, □), 4 juv. 6, 24 February 1981; 2 ad. 9(□), 18 April 1981; 11 ad. 9(3□,8□), 1 juv. 6, Murray River site, 15 April 1981; 4 ad. 9(□), 19 May 1981; 3 ad. 9(□), 22 May 1981; 4 ad. 9(□), 22 May 1981; 1 ad. 9(□), Yarragil Brook site, 22 June 1981; 5 ad. 9(2□, 3□), 1 subad. 8(□), 3 juv. 5, 1 stad.?, 20 July 1981; 3 ad. 9(2□, 1□), 4 juv. 6, 1 juv. 5, 3 juv. 3, Murray River site, 21 July 1981; 1 ad. 9(□), 29 July 1981; same data, in soil, 5 juv. 5, Yarragil Brook site, 11 August 1980; 9 ad.

9(4□,5□), 1 subad. 8(□), 18 juv. 6, 32 juv. 5, 25 juv. 3, 12 August 1980; 1 ad. 9(□), 7 juv. 6, 13 juv. 5, 7 juv. 3, 18 August 1980; 10 juv. 3, 14 September 1980; 1 ad. 9(□), 7 juv. 6, 5 juv. 5, 3 juv. 3, 14 September 1980; 2 ad. 9(□), 2 juv. 6, 15 September 1980; 7 ad. 9(3□,4□), 5 subad. 8(1□,4□), 15 juv. 6, 2 juv. 5, 1 juv. 3, Murray River site, 20 September 1980; 2 juv. 6, 2 juv. 5, 2 juv. 3, 15 October 1980; 3 ad. 9(2□, 1□), 9 subad. 8(3□,6□), 28 juv. 6, 16 juv. 5, 4 juv. 3, 16 October 1980; 1 ad. 9(□), 7 subad. 8(□), 5 juv. 6, 5 juv. 5, 18 October 1980; 2 ad. 9(□), 15 subad. 8(4□, 11□), 19 juv. 6, 11 juv. 5, 6 juv. 3, Yarragil Brook site, 23 October 1980; 1 ad. 9(□), 2 subad. 8(□),

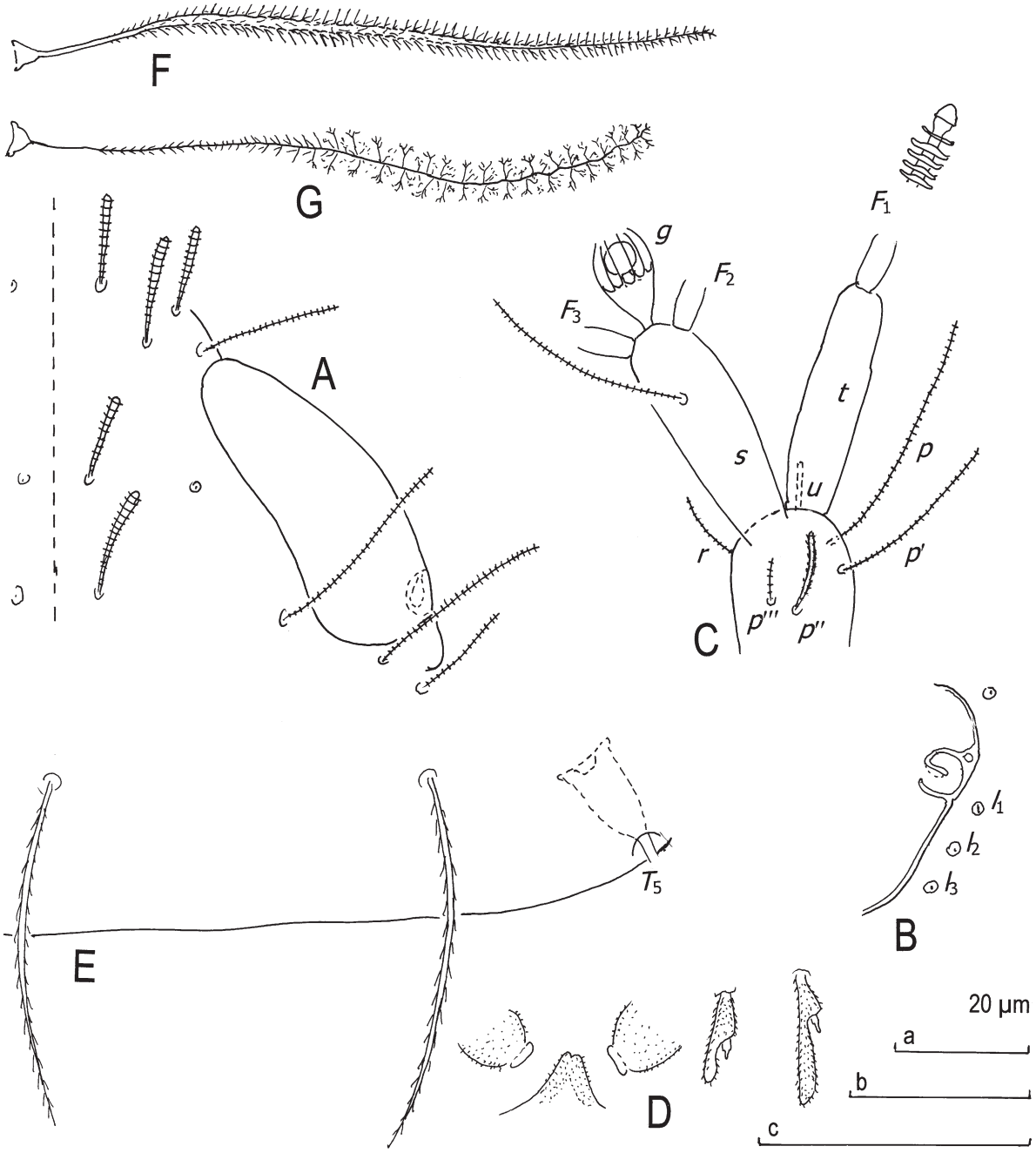

FIGURE 49 *Stylopauropoides eximiformis* sp. nov., holotype ad. 9(□): A, head, posteriomedian and right part, tergal view; B, vesicle inside posterior part of temporal organ, lateral view; C, right antenna, sternal view; D, collum segment, median and left part, sternal view; E, tergite VI, posterior part; F, T_3; G, T_2. Scale a: Figures F, G; b: Figures A, B, D, E; c: Figure C.

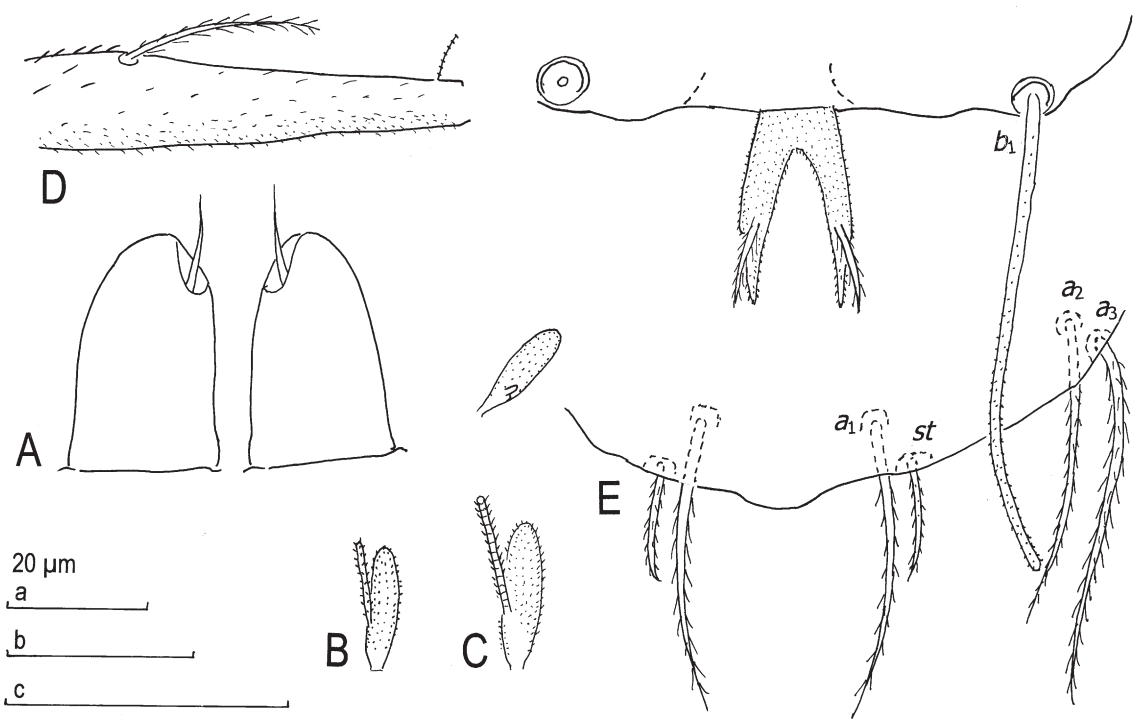

FIGURE 50 *Stylopauropoides eximiformis* sp. nov., A, paratype ad. 9 (□).B–E. holotype ad. 9(□): A, genital papillae and seta on coxa of leg 2, anterior view; B, seta on coxa of leg 9; C, seta on trochanter of leg 9; D, tarsus of leg 9; E, pygidium, sternal view. Scale a: Figure D; b: Figures A–C; c: Figure E.

3 juv. 6, 4 juv. 5, Murray River site, 24 October 1980; 11 ad. 9(□), 13 subad. 8(1□, 2□), 6 juv. 6, 2 juv. 5, 11 December 1980; 32 ad. 9(20□, 12□), 3 subad. 8(□), 28 juv. 6, 35 juv. 5, 52 juv. 3, 18 July 1981; 4 ad. 9(1□, 3□), 1 subad. 8(□), 1 juv. 6, 12 juv. 5, 6 juv. 3, 25 July 1981; 2 subad. 8(□, □), Yarragil Brook site, 12 January 1981; 8 ad. 9(4□,4□), 3 subad. 8(□), 2 juv. 6, 18 January 1981; 1 subad. 8(□), 2 juv. 5, 1 juv. 3, Murray River site, 19 January 1981; 16 ad. 9(5□, 11□), 6 subad. 8(1□,5□), 3 juv. 6, 18 February 1981; 1 ad. 9(□), 24 February 1981; 1 ad. 9(□), 1 subad. 8(□), Yarragil Brook site, 25 February 1981; 10 ad. 9(4□,6□), 5 subad. 8(1□,4□), 3 juv. 5, 1 juv. 3, Murray River site, 18 March 1981; 4 ad. 9(1□, 3□), 1 juv. 5, 1 juv. 3, 25 March 1981; 3 ad. 9(1□, 2□), 2 subad. 8(□), 1 juv. 6, 15 April 1981; 2 ad. 9(□), Yarragil Brook site, 18 April 1981; 13 ad. 9(10□, 3□), 1 juv. 6, 6 juv. 5, 2 juv. 3, Murray River site, 21 April 1981; 14 ad. 9(3□, 11□), 2 subad. 8(□, □), 7 juv. 5, 16 juv. 3, Yarragil Brook site, 19 May 1981; 1 ad. 9(□), 1 juv. 5, 6 juv. 3, Murray River site, 25 May 1981; 58 ad. 9(24□, 34□), 1 subad. 8(□), 2 juv. 5, 15 juv. 3, 27 May 1981; 6 ad. 9(3□, 3□), 1 juv. 5, 4 juv. 3, 22 June 1981; 11 ad. 9(7□,4□), 5 juv. 6, 6 juv. 5, 7 juv. 3, 23 June 1981; 3 ad. 9(□), 4 juv. 3, 28 June 1981; 8 ad. 9(□), 4 subad. 8(□), 2 juv. 6, 21 juv. 3, 29 June 1981; 1 juv. 3, 21 July 1981; 1 ad. 9(□), 1 subad. 8(□), 2 juv. 3, 25 July 1981; 15 ad. 9(6□,9□), 2 juv. 3, 28 July 1981; 1 ad. 9(□), 8 juv. 5, 9 juv. 3, 26 July 1981; 4 ad. 9(3□, 1□), 2 subad. 8(1□, 1□), 1 juv. 6, 9 juv. 5, 4 juv. 3, Yarragil Brook site, 31 July 1981; 2 ad. 9(□, □), 2 juv. 3, Murray River site, 25 August 1981; 5 juv. 5, 14 juv. 3, Yarragil Brook site, 26 August 1981; 43 ad. 9(3□, 1□), 2 subad. 8(□), 1 juv. 6, 9 juv. 5, 4 juv. 3, 31 August 1981; 1 ad. 9(□), 2 juv. 5, 2 juv. 3, 14 September 1981; 2 ad. 9(□), 2 juv. 6, 15 September 1981; 3 ad. 9(2□, 1□), 5 juv. 6, 2 juv. 5, 5 juv. 3, 21 September 1981; 3 ad. 9(2□, 1□), 2 subad. 8(□), 13 juv. 6, 14 juv. 5, 6 juv. 3, 22 September 1981; 1 ad. 9(□), 12 juv. 6, 3 juv. 5, 2 juv. 3, 29 September 1981; 1subad. 8(□), 7 juv. 6, 3 juv. 5, 29 December 1981. 10 ad. 9(7□, 3□), 1 subad. 8(□), 4 juv. 6, 9 juv. 5, 3 juv. 3, date ?.

DIAGNOSIS

Stylopauropoides eximiformis sp. nov. may be a close relative of *S. eximius* Scheller from Tasmania (Scheller 2009b). They have striking similarities but can be distinguished by the temporal organs, with a short curved bladder inside posterior margin in *S. eximiformis,* a straight posteriorly directed exterior vesicle in *S. eximius*, the seta *u* of the 4th antennal segment, well developed, not absent, the pubescence of the posterior tergites is long and sparse, not short and dense, the posteriomedian margin of the pygidial tergum has a low bulge, not a linguiform appendage, and the appendages of the anal plate are tapering and pointed, not clavate.

DESCRIPTION

Adult female (and paratypes)

Length: (0.72–)0.97(–1.06) mm.

Head (Figures 49A, B): tergal setae of medium length–fairly long, densely striate, anterior and posteriomedian setae weakly clavate, sublateral and lateral ones cylindrical. Relative lengths of setae, 1st row: a_1 = 10, a_2 = 9(–12); 2nd row: a_1 = (10–)12(–14), a_2 = (14–)16(–18), a_3 = (15–)16(–19); 3rd row: a_1 = (7–)9(–11), a_2 = ?(9–13); 4th row: a_1 = (9–)12(–14), a_2 = (22–)25(–27), a_3 = (20–)22(–28), a_4 = (10–)12(–14). Ratio a_1/a_1–a_1 in 1st row 1.0(–1.2), 2nd row (0.4–)0.6(–0.7), 3rd row (1.1–)1.5, 4th row (1.1–)1.3. Temporal organs narrow anteriorly, 1.0(–1.3) times as long as their shortest interdistance; a curved vesicle (Figure 49 B) in posterior part inside margin at level of l_1 and lowered into the temporal organ, small pore close to vesicle. Head cuticle almost glabrous.

Antennae (Figure 49C): segment 4 with 6 cylindrical blunt setae, *p*, *p′*, *p‴* and *r* densely annulate, *p″* and *u* with short pubescence; their relative lengths: *p* = 100, *p′* = (66–)79(–80), *p″* = (30–)36(–43), *p‴* = (17–)20(–23), *r* = 22(–29), *u* = (16–)18. Tergal seta *p* 0.8(–0.9) of the length of tergal branch *t*. The latter branch fusiform, (3.3–)3.8 times as long as its greatest diameter and (1.0–)1.2 times as long as sternal branch *s*, that branch somewhat clavate, (2.3–)2.9 times as long as its greatest diameter; posterodistal and anterodistal corners equally truncate. Seta *q* cylindrical, densely striate, somewhat thinner than *p* and *p′*, (0.8–)1.0(–1.1) times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = (7–)8(–10); F_2 = (68–)79(–87), bs_2 = 8(–11);F_3 = (71–)81(–89), bs_3 = 8(–11). F_1 (2.4–)2.9(–3.2) times as long as *t*, F_2 and F_3(2.6–)3.0(–3.3) and (2.1–)2.3(–2.8) times as long as *s* respectively. Distal calyces helmet-shaped; distal part of flagella axes widened only just below calyces. Globulus *g* (1.5–)1.6(–1.7) times as long as wide, ≈14 bracts, capsule spherical; width of *g* (0.9–)1.0 of greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 49 D, E): setae of collum segment (Figure 49D) furcate; distal part of main branch clavate, secondary branch rudimentary conical, glabrous. Sublateral setae (1.3–)1.4 times as long as submedian setae; sternite process blunt with small anterior incision; appendages with flat caps with narrow collar; setae, process and appendages with short and dense pubescence.

Setae on anterior tergites subcylindrical, blunt, annulate, on posterior tergites lengthening, tapering, pointed, and with distinct oblique pubescence, 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 49E) long, pointed, as long as interdistance and 1.2(–1.7) times as long as pygidial setae a_1. Anterior part of VI and tergal pygidium with sparse pubescence of long hairs.

Bothriotricha (Figures 49F, G): relative lengths: T_1 = 100, T_2 = (93–)95(–112), T_3 = (100–)104(–124), T_4 = (131–)134(–165), T_5 = (175–)297(–236); axes simple, thin, straight, thickest in proximal 3/4 of T_3 (Figure 49F). Pubescence hairs simple on T_3–T_5 and on proximal halves of T_1 and T_2, short on T_4 and T_5, hairs strongest and most spread out on T_3, long erect branched distally and whorled on distal halves of T_1 and T_2 (Figure 49G).

Genital papillae (Figure 50A): glabrous, 1.6 times as long as greatest diameter, basal half almost cylindrical, distal half rounded, seta almost 0.5 of the length of papilla.

Legs (Figures 50B–D): Setae on coxa (Figure 50B) and trochanter (Figure 50C) of leg 9 furcate, with short and dense pubescence, main branch leaf-shaped, secondary branch cylindrical, longest on seta on trochanter; corresponding setae on more anterior legs with rudimentary, cylindrical, glabrous, secondary branch. Tarsus of leg 9 (Figure 50D) slender, (4.4–)5.5 times as long as its greatest diameter. Proximal seta tapering, pointed, with long oblique pubescence; distal seta very thin, subcylindrical, blunt, striate. Proximal seta (0.4–)0.5 of the length of tarsus and 3.6(–3.7) times as long as distal seta. Tarsus with distinct but sparse pubescence, on tergal side a few long hairs only.

Pygidium (Figure 50E).

Tergum: posterior margin rounded with small low lobe between *st*. Relative lengths of setae: a_1 = 10, a_2 = (9–)10, a_3 = (10–)12(–14), *st* = (3–)4(–5); setae curved inward, tapering, pointed, and with distinct pubescence. Distance a_1–a_1 0.4(–0.6) of the length of a_1, distance a_1–a_2 (4.0–)4.5 times as long as distance a_2–a_3; distance *st*–*st* (1.8–)1.9(–2.0) times as long as *st* and (1.2–)1.4(–1.6) times as long as distance a_1–a_1. Tergum very sparsely pubescent anteriorly, glabrous posteriorly.

Sternum: posterior margin between b_1 almost straight. Relative lengths of setae (pygidial a_1 = 10): b_1 = (11–)14(–15); setae cylindrical, blunt, with short pubescence, as long as interdistance. Sternum with short pubescence.

Anal plate (Figure 50E) directed obliquely upward, narrowest anteriorly, longer than broad, consisting of two subcylindrical, in distal half tapering, branches separated by a deep V-shaped incision, length of branches 3/4 of the length of plate; from the sternal side of each branch a subcylindrical tapering and posteriorly directed appendage, the latter 0.6 of the length of branch; plate with faint pubescence, appendages with distinct pubescence of oblique hairs. In one juv. 6 specimen the right appendage was doubled.

ETYMOLOGY

From the Latin eximius = exceptional (referring to the close relationship to *S. eximius* Scheller).

Stylopauropoides eximius Scheller, 2009

Stylopauropoides eximius Scheller 2009b: 320–322, figures 169–179.

DISTRIBUTION

Tasmania, in the northwest: Savage River and Hibbs Lagoon. Not known outside Australia.

Stylopauropoides hetaeros Scheller, 2009

Stylopauropoides hetaeros Scheller 2009b: 318–320, figures 155–168.

DISTRIBUTION

Tasmania, in the northwest: Savage River; in the northeast: Mt Victoria, Mt Michael and Simons Creek; in the southeast: Big Sassy Creek. Not known outside Australia.

Stylopauropoides quadripartitus Scheller, 2009

Stylopauropoides quadripartitus Scheller 2009b: 314–316, figures 128–141.

DISTRIBUTION

Tasmania: in the northwest, Savage River, Cradle Mountain and Hibbs Lagoon; in the northeast, Mt Michael and Simons Creek; in the central part, Projection Bluff; in the southwest, Frodshams Pass and Old Farm Road at Mt Wellington; in the southeast Big Sassy Creek, Sandspit River, Tasman Peninsula and Mt Mangana on Bruny Island. Not known outside Australia.

Stylopauropoides ringueleti Remy, 1962

Stylopauropoides ringueleti Remy, 1962: 50–51, figures 1–4; Scheller, 2009b: 309.

DISTRIBUTION

Tasmania, in the northwest: Savage River, Bradshaws Road and Cradle Mountain; in the north; Saxons Creek; in the northeast: Mt Victoria, Mt Michael and Simons Creek; in the southeast: Big Sassy Creek and Tasman Peninsula.

Elsewhere it is also known from the southern parts of Chile and Argentina.

Stylopauropoides rounsevelli Scheller, 2009

Stylopauropoides rounsevelli Scheller, 2009b: 312–314, figures 117–127.

DISTRIBUTION

Tasmania: in the northwest, Savage River, Cradle Mountains and Hibbs Lagoon; in the northeast, Mt Victoria, Mt Michael and Simons Creek; in the southwest, Frodshams Pass and Riveaux Creek; in the southeast Big Sassy Creek and Mt Mangana on Bruny Island. Not known outside Australia.

Stylopauropoides saxicola Scheller, 2011

Stylopauropoides saxicola Scheller, 2011a: 5–7, figures 11–21.

DISTRIBUTION

Western Australia, Mundaring Shire. Not known outside Australia.

Stylopauropoides scissus Scheller, 2009

Stylopauropoides scissus Scheller, 2009b: 316–318, figures 142–154.

DISTRIBUTION

Tasmania, in the northwest: Savage River, Bradshaws Road and Cradle Mountain; in the central part: Projection Bluff; in the northeast: Mt Victoria and Mt Michael; in the southwest: Frodshams Pass and Mt Field; in the southeast: Big Sassy Creek, Sandspit River and Mt Mangana on Bruny Island. Not known outside Australia.

Stylopauropoides tiegsi (Remy, 1949)

Stylopauropus tiegsi Remy, 1949: 54–56, figure 1A–E.

Stylopauropoides tiegsi (Remy): Greenslade and Scheller 2002: 24, 25.

DISTRIBUTION

Victoria, Belgrave. Also known from New Zealand.

Stylopauropoides wungongensis Scheller, 2011

Stylopauropoides wungongensis Scheller, 2011a: 2, 3, 5, figures 1–10.

DISTRIBUTION

Western Australia, Wungong Dam. Not known outside Australia.

Genus Rabaudauropus Remy, 1953

Rabaudauropus Remy, 1953: 38–39.

TYPE SPECIES

Rabaudauropus milloti Remy, 1953, by monotypy.

Rabaudauropus notialis sp. nov.

urn:lsid:zoobank.org:act:F10578CD-A1CE-42AB-95DD-A6792D545B79

Figures 51A–H, 52A–E

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*****:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 15 April 1981 (WAM T125590).

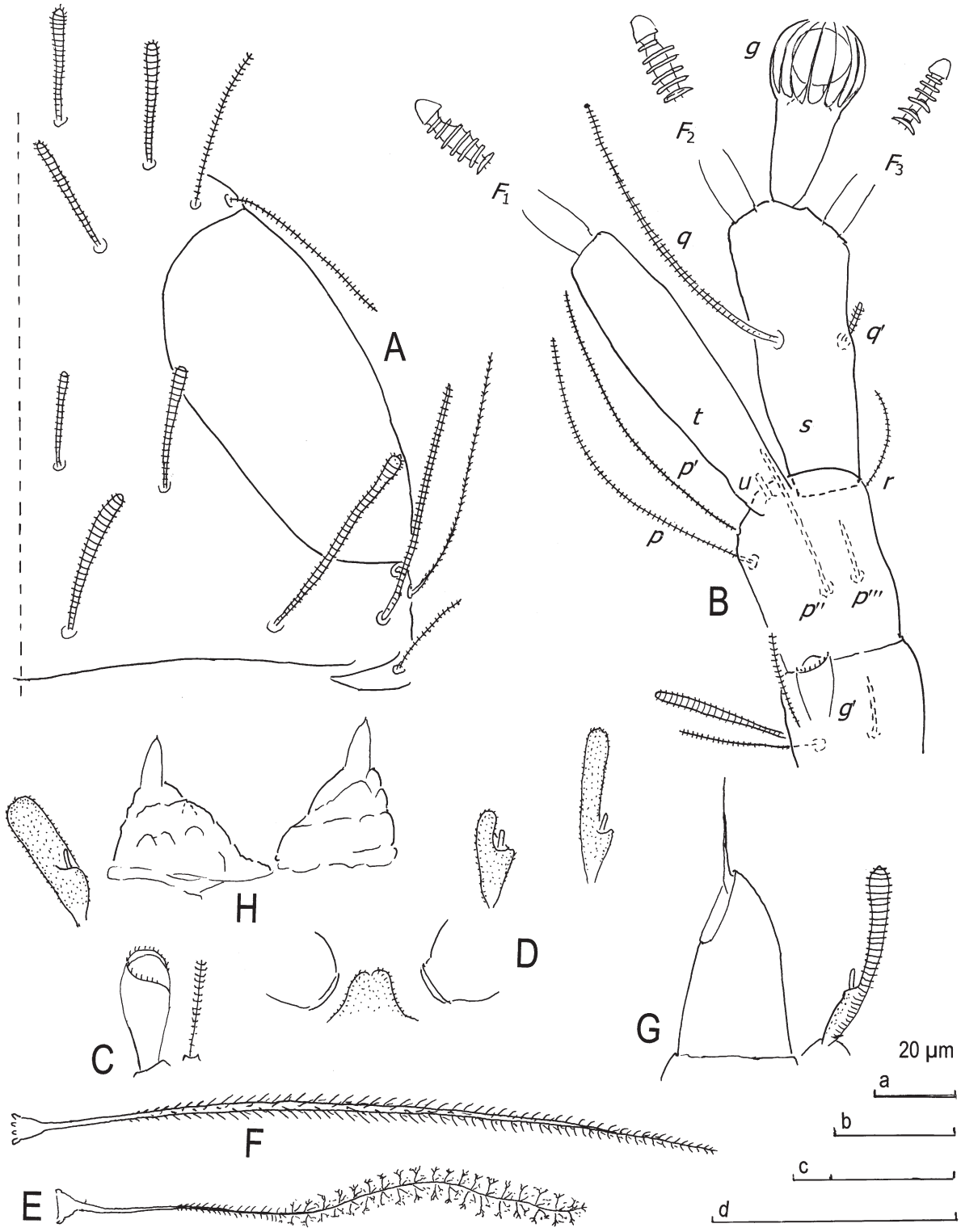

FIGURE 51 *Rabaudauropus notialis* sp. nov., A–F holotype ad. 9(□), G, paratype ad. 9(□), H, paratype subad. 8 (m£): A, head, median and right part, tergal view; B, right antenna, tergal view; C, globulus g' of 4th antennal segment; D, collum segment, median and right part, sternal view; E, T_1; F, T_3; G, left genital papilla and seta on coxa of leg 2, anterior view; H, genital papillae in subad. 8, anterior view. Scale a: Figure E, F; b: Figure G; c: Figures A, B, D, H; d: Figure C.

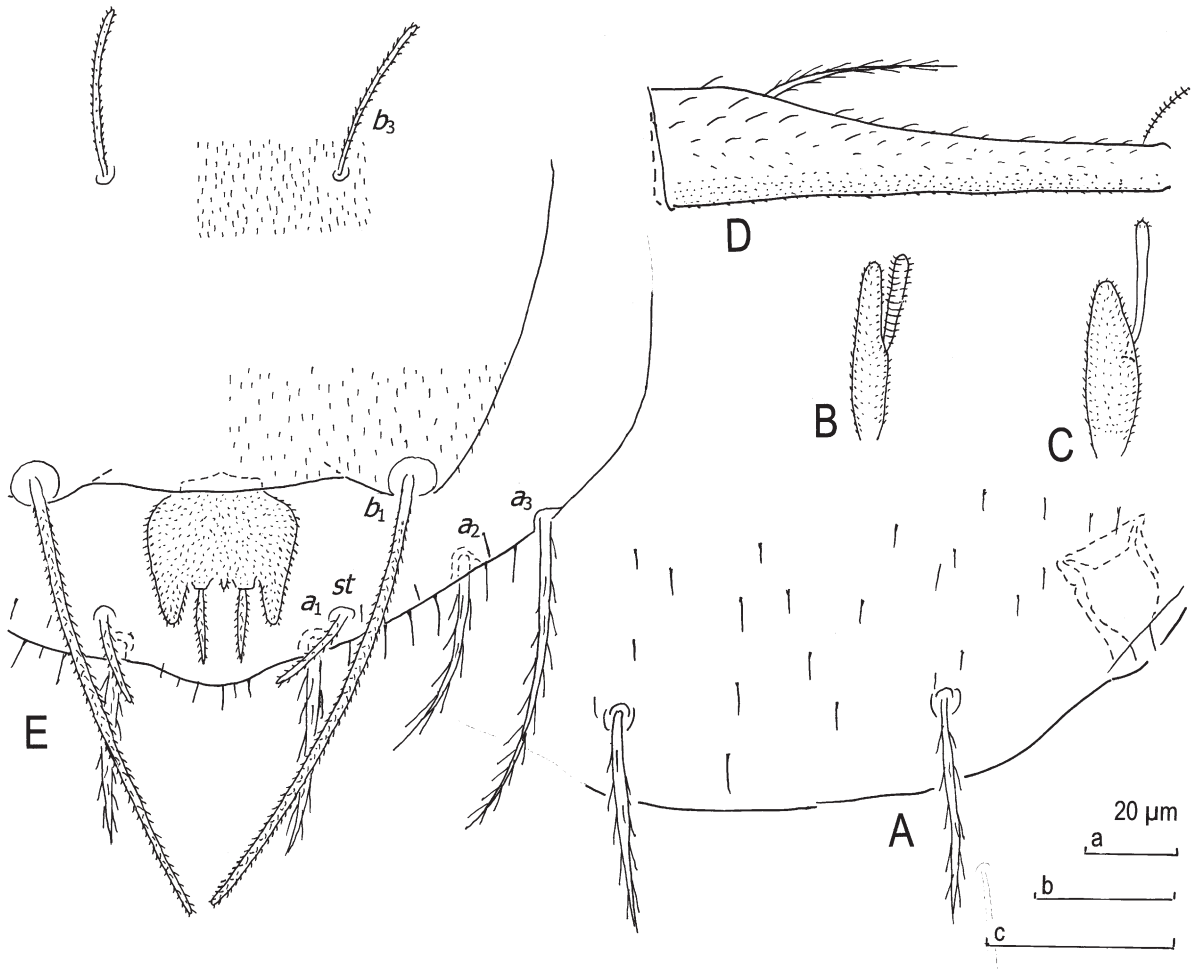

FIGURE 51 *Rabaudauropus notialis* sp. nov., holotype ad. 9(□): A, tergite VI, posteriomedian part; B, seta on coxa of leg 9; C, seta on trochanter of leg 9; D, tarsus of leg 9; E, pygidium, posteriomedian and right part, sternal view. Pubescence only partly drawn in E. Scale a: Figure D; b: Figures B, C; c: Figures A, E.

Paratypes

Australia: *Western Australia*: 1 ad. 9(□), 1 subad. (□), same data as holotype (WAM T125591); 2 ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 27 May 1981 (WAM T125592); 1 ad. 9(□), Yarragil site, in litter, 23 June 1981 (WAM T125593).

Non-types

Australia: *Western Australia*: 1 juv. 3, c. 11 km SSE of Dwellingup, Murray River site, in soil, 18 July 1980; 3 juv. 3, 25 July 1980; 4 juv. 3, 20 September 1980; c. 22km SE of Dwellingup, Yarragil Brook site, in soil, 1 juv. 6, 31 August1981.

DIAGNOSIS

Rabaudauropus notialis sp. nov. is well distinguished by the thick basal half of the antennal globulus *g,* the shape of the anal plate (see below) and the strong pubescence of the pygidium. The occurrence of these characters not known from other species in the genus makes it impossible to trace any relationships at present.

DESCRIPTION

Length: (1.00–)1.40 mm.

Head (Figure 51A): setae long, anterior and submedian ones a little clavate, lateral setae cylindrical, blunt, all densely pubescent-striate. Relative lengths of setae, 1st row: a_1 = 10, a_2 = 11; 2nd row: a_1 = (13–)15(–16), a_2 = (16–)18, a_3 = (15–)18; 3rd row: a_1 = 9, a_2 = (11–)12; 4th row: a_1 = (13–)15, a_2 = (19–)21, a_3 = (21–)22(–23), a_4 = (9–)12; lateral group setae (one paratype only): l_1 = 21. Ratio a_1/a_1–a_1 in 1st row (1.1–)1.3, 2nd row (1.0–)1.1, 3rd row (1.1–)1.5, 4th row 1.5(–1.7). Temporal organs ovoid, 1.3(–1.6) times as long as shortest interdistance; posterior pore at level of l_1. Head cuticle granular.

Antennae (Figures 51B, C): segment 3 with 3 setae and large globulus *g'* (Figure 50 C), the latter 2.5 times as long as its greatest diameter, with short pubescence. Segment 4 with 6 thin, cylindrical, densely annulate setae, *u* very short; relative length of setae: p = 10, p' = (8–)10, p'' = 4(–5), p''' = r = 2(–4). Tergal seta p 1.2(–1.3) times as long as tergal branch *t*. The latter branch slender, somewhat fusiform, (4.4–)5.9 times as long as its greatest diameter, 1.1 times as long as sternal branch *s*, that branch with somewhat truncate posterodistal corner, (2.3–)2.4 times as long as its greatest diameter and with two cylindrical striate setae, q and q', the former 1.0(–1.2) times as long as *s* and (6.1–)8.2 times as long as q'. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 9; F_2 = 89(–117), bs_2 = (9–)10; F_3 = (52–)58, bs_3 = 8. F_1 (2.3–)2.8 times as long as *t*, F_2 and F_3 2.5(–3.3) and 1.6 times as long as *s* respectively. Distal calyces helmet-shaped; distal part of flagella axes fusiformly widened below calyces in F_1 and F_2. Globulus *g* with thick stalk, 2.1(–2.4) times as long as wide, ≈10 bracts, capsule spherical; width of *g* (1.3–)1.5 times as wide as greatest diameter of *t*. Bracts faintly pubescent, other parts of antennae glabrous.

Trunk (Figures 51D, 52A): setae of collum segment (Figure 51D) thick furcate blunt, main branch broad, with short dense pubescence, secondary branch short, cylindrical, glabrous; sublateral setae (1.4–)1.6 times as long as submedian ones; sternite process broad anteriorly, with shallow apical incision; appendages wide with flat caps; process with short pubescenc, appendages glabrous.

Setae on anterior tergites as posterolateral setae on head, on posterior tergites pointed and with sparse oblique pubescence; 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Submedian posterior setae on VI (Figure 52A) 0.7(–1.0) of interdistance and 1.2(–1.4) times as long as pygidial setae a_1. Anterior tergites faintly pubescent, posterior ones with distinct but very sparse pubescence similar to that on posterior part of pygidial tergum (Figure 52 E).

Bothriotricha (Figures 51E, F): relative lengths: T_1 = 100, T_2 = ?(102), T_3 = 123(–128), T_4 = 162(–176), T_5 = ?(259–268); axes thin simple. The T_1 (Figure 51E) and T_2 with short oblique pubescence of simple hairs on proximal 1/3, more outward with longer, erect, ramose hairs arranged in whorls; T_3–T_5 with strong, simple, oblique hairs, dense on T_3 (Figure 51F), sparser on T_4 and T_5.

Genital papillae (Figure 51G): glabrous, conical, twice longer than greatest diameter, seta thin, inserted very near the tip, 0.6 of the length of papilla.

Legs (Figures 52B, C, D): setae on coxa (Figure 52B) and trochanter (Figure 52C) of leg 9 furcate with blunt branches with short pubescence, main branch broad, secondary branch thinner, clavate, and inserted near the middle of main branch, on trochanter of leg 9 and on corresponding setae on more anterior legs secondary branch reaching far outside the end of main branch. Tarsus of leg 9 (Figure 52D) slender, tapering, with sparse but strong pubescence on tergal side, very short and dense on sternal side, particularly on distal half, tarsi 4.3(–4.4) times as long as greatest diameter. Proximal seta tapering, pointed with long depressed pubescence, distal seta thinner, cylindrical, blunt, densely striate; proximal seta 0.3(–0.4) of the length of tarsus and (2.3–)2.7 times as long as distal seta.

Pygidium (Figure 52E).

Tergum: posterior margin broadly triangular and with a small rounded lobe between *st*. Relative lengths of setae: a_1 = 10, a_2 = 10(–12), a_3 = (14–)15, *st* = 4(–6); *a*-setae tapering pointed, sparsely pubescent with oblique hairs, a_2 and a_3 curved inward and converging, *st* cylindrical, blunt, with short pubescence, almost straight and converging. Distance a_1–a_1(0.8–)0.9 of the length of a_1; distance a_1–a_2 1.9(–2.0) times as long as distance a_2–a_3; distance *st*–*st* (2.2–)2.6 times as long as *st* and 1.2(–1.3) times as long as distance a_1–a_1. Cuticle with very sparse but strong pubescence.

Sternum: the b_1 on rounded lobes with low bulge in between. Relative lengths of setae (pygidial a_1 = 10): b_1 = 22(–25), b_3 = 8; the b_1 and b_3 thin, cylindrical, blunt, with short pubescence, b_1 1.3 and b_3 0.7 of interdistance. Cuticle with short pubescence.

Anal plate (Figure 52E) and its appendages with short dense almost erect pubescence. Plate narrow anteriorly, widest in anterior third, lateral margins almost straight, somewhat converging, posterior margin protruding into two lateral triangular blunt extensions and in between two small knobs each with a lanceolate posteriorly directed appendage.

*Stage subad. 8: g*enital papillae (Figure 51H) conical, extended distally into a sharp point, about as long as wide, no seta.

ETYMOLOGY

From the Latin notialis = southern (referring to occurrence in Australia).

Genus Nesopauropus Scheller, 1997

Nesopauropus Scheller 1997: 257.

TYPE SPECIES

Cauvetauropus ceylonicus Scheller, 1970, by original designation.

Nesopauropus postlei sp. nov.

urn:lsid:zoobank.org:act:859C39C7-D96C-4E4D-A431-9B489BEC077A

Figure 53A–K

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*****:** ad. 9(□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 18 July 1980 (WAM T125594).

Paratype

Australia: ***Western Australia*****:** 1 subad. 8(□), same data as holotype except 16 October 1980.

DIAGNOSIS

The genus is previously known from a few species from the Ethiopian region (Gabon, Seychelles), the Oriental region (Sri Lanka) and the Australian region (Tasmania). *Nesopauropus postlei* sp. nov. may be closest to *N. subtilis* Scheller from Sri Lanka (Scheller 1970). The two species are distinguished by the shape of the bothriotricha T_3, with two distinct swellings in *N. postlei*, no swelling in *N. subtilis*, by the length of the proximal seta of the tarsus of the 9th pair of legs, 0.3 of the length of tarsus, not 0.5, and by the shape of the anal plate, 2.4 times as long as broad without distinct posterolateral corners, not 1.3 times as long as broad and with posterolateral corners.

DESCRIPTION

Adult female holotype.

Length: 0.40 mm.

Head (Figures 53A, B): tergal setae annulate–striate, submedian ones somewhat clavate, sublateral and lateral ones cylindrical, their relative lengths: 1st row: a_1 = 10, a_2 = 13; 2nd row: a_1 = 9, a_2 = 22, a_3 = 12; 3rd row: a_1 = 11, a_2 = 15; 4th row: a_1 = 9, a_2 = 19, a_3 = 22, a_4 = 16; lateral group setae not studied. Ratio a_1/a_1–a_1 in 1st row 0.9, 2nd row 0.6, 3rd row 1.0, 4th row 1.2. Temporal organs about as long as shortest distance apart; distinct aperture in posterior part at a level with l_1 (Figure 53B). Head cuticle faintly granular.

Antennae (Figure 53C): segment 4 with 4 setae, *p* and *p′* somewhat clavate annulate, *p″* and *r* cylindrical striate; their relative lengths: *p* = 10, *p′* = 5, *p″* = *r* = 4. Neither *p‴* nor *u*. Tergal seta *p* 1.7 times as long as tergal branch *t*. The latter branch somewhat fusiform, 1.7 times as long as its greatest diameter and 0.9 of the length of sternal branch *s*, that branch twice longer than its greatest diameter, anterodistal corner of *s* distinctly truncate. Seta *q* as *p′* of 4th segment, 1.4 times as long as *s*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 9; F_2 = 33, bs_2 = 7; F_3≈27, bs_3 = 9. F_1 5 times as long as *t,* F_2 and F_3 1.4 and 3.6 times as long as *s* respectively. Distal calyces subhemispherical; distal part of flagella axes weakly fusiform. Globulus with thin stalk and 7 bracts, 1.3 times as long as wide, capsule subspherical; width of *g* 0.7 of the greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 53D–E): setae of collum segment (Figure 53D) simple, somewhat clavate, blunt, annulate, sublateral setae 1.8 times as long as submedian setae; sternite process extended anteriorly and with anterior incision; appendages with rounded anterior side, posterior margin straight, caps small with collar; process and appendages glabrous.

Setae on tergites subcylindrical, blunt, annulate, on anterior and posterior tergites of the same length; 4+4 setae on tergite I, 6+6 on II–V, 4+2 on VI. Submedian posterior setae on VI (Figure 53E) 0.5 of interdistance and 0.8 of the length of pygidial setae a_1. Tergites glabrous.

Bothriotricha (Figures 53F, G): relative lengths: T_1 = 100, T_2 = 98, T_3 = 100, T_4 = 109, T_5 = 115; all but T_3 with thin axes and distal 1/3 with short pubescence, distal half of T_5 with simple almost erect hairs, distal half of T_1 (Figure 52F), T_2 and T_4 with long, ramose hairs arranged in whorls distally, particularly long on T_1 and T_2. The T_3 (Figure 52G) with thicker axes in proximal 2/3 and two ovoid swellings, one near the middle, the other at the very end; pubescence hairs simple, short, almost erect on proximal half, ramose on distal half.

Legs (Figures 53H–J): setae on coxa of leg 9 (Figure 53H) simple, cylindrical, blunt, annulate, on trochanter (Figure 53 I) furcate, branches similar to those of coxal seta, equal in length. Tarsus of leg 9 (Figure 52J) tapering, 3.1 times as long as its greatest diameter. Setae subcylindrical, proximal seta sparsely annulate, distal seta densely striate; proximal seta 0.3 of the length of tarsus and 0.8 of the length of distal seta. Cuticle of tarsus glabrous.

Pygidium (Figure 53K).

Tergum: posterior margin rounded, small lobes at insertion points of *st*. Relative lengths of setae: a_1 = 10, a_2 = 7, a_3 = 11, *st* = 9; setae indistinctly striate distally, *a*-setae cylindrical, *st* clavate, a_1 straight, the others curved inward, *st* converging. Distance a_1–a_1 0.9 of the length of a_1; distance a_1–a_2 2.6 times as long as distance a_2–a_3; distance *st*–*st* 2.2 times as long as *st* and 1.7 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin between b_1 with a broad, deep indentation. Relative lengths of setae (pygidial a_1 = 10): b_1 = 34, b_2 = 12. The b_1 cylindrical, striate proximally, distal part annulate; b_2 cylindrical, curved inward; b_1 1.4 times as long as interdistance; b_2 0.9 of distance b_1–b_2.

Anal plate (Figure 53K) glabrous, longish, narrowly linguiform, with straight lateral margins, 2.4 times as long as broad, broadest anteriorly, distal end triangular, two short clavate glabrous appendages pointing downward from distal part, appendages ≈0.3 of the length of plate.

ETYMOLOGY

This species is dedicated to Dr A.C. Postle, one of

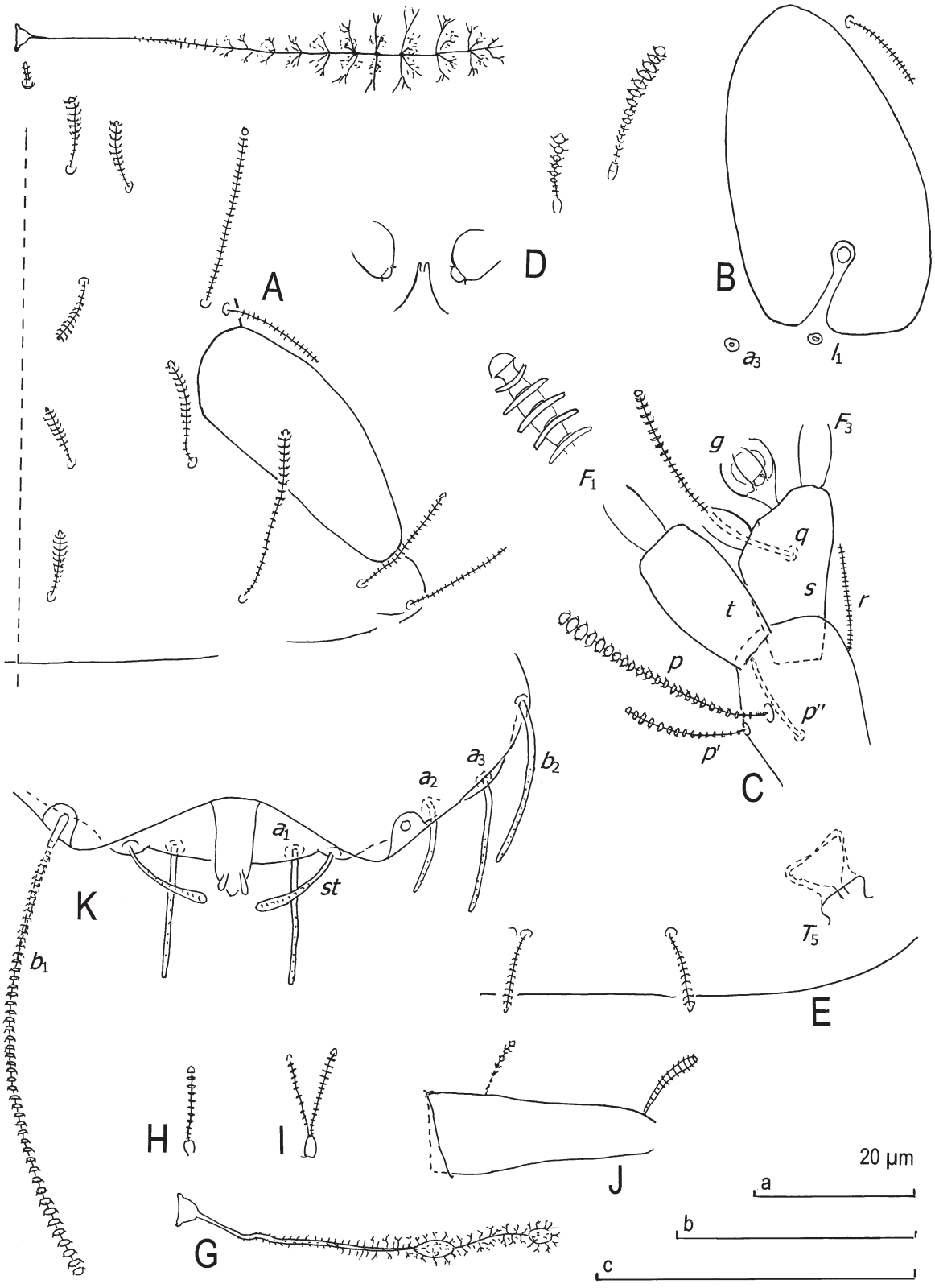

FIGURE 53 *Nesopauropus postlei* sp. nov., holotype, ad. 9(□): A, head, median and right part, tergal view; B; right temporal organ, anteriotergal view; C, right antenna, tergal view: D, collum segment, median and left part, sternal view; E, tergite VI, posteriomedian part with insertion pit of T_5; F, T_1; G, T_3; H, seta on coxa of leg 9; I, seta on trochanter of leg 9; J, tarsus of leg 9; K, pygidium, posteriomedian and left part, sternal view. Scale a: Figures F, G; b: Figures A, D, H–J; c: Figures B, C, E, K.

the collectors and the one who made the Dwellingup collection available for study.

Nesopauropus tasmaniensis Scheller, 2009

Nesopauropus tasmaniensis Scheller, 2009b: 307, 308, figures 94–104.

DISTRIBUTION

Tasmania, in the northeast: Mt Michael. Not known outside Australia.

Family Amphipauropodidae Scheller, 2008

Genus *Amphipauropus* Scheller, 1984

Amphipauropus Scheller, 1984: 2086.

TYPE SPECIES

Cauvetauropus rhenanus Hüther, 1971, by original designation.

REMARKS

The genus is amply distinctive and justifiable and seems to have a large range but it is very seldom met with. So far two species have been reported, one from North Europe and the other, somewhat doubtful, from France. It has been reported from three continents, in Europe from Germany (Hüther 1971), Sweden, Norway, Denmark (Scheller 2005b), Iceland (Scheller et al. 2006) and France (Remy 1960a), in North America from Canada (Scheller 1984) and in Asia from Japan (Hagino 2002, 2004), all these on the northern hemisphere. Its occurrence in the material from Dwellingup indicates that the genus may be subcosmopolitan.

Because of the lack of material, particularly adult or subadult specimens, only a single species has been described completely, *A. rhenanus* (Hüther), so far reported from Germany and North Europe. The material reported below, a single juvenile specimen, admitted detailed observations of characters of great value for future identification and is therefore described.

Amphipauropus sp.

Figure 54A–H

MATERIAL EXAMINED

Australia: *Western Australia*: 1 juv. 5, c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 28 July 1980 (WAM T125597).

DESCRIPTION

Juvenile, 5 pairs of legs

Length: 0.51 mm.

Head (Figure 54A): tergal setae short claviform, most of them with thick base, with short and dense pubescence, arranged in four transversal rows, relative lengths of setae, 1st row: $a_1 = 10$, $a_2 = 11$; 2nd row: $a_1 = 10$, $a_2 = 12$, $a_3 = 14$; 3rd row: $a_1 = a_2 = 9$, $a_3 = 12$; 4th row: $a_1 = a_2 = 8$, $a_3 = 13$, two setae behind temporal organ = 14 and = 17. Ratio $a_1/a_1–a_1$ in 1st row 1.3, 2nd row 0.3, 3rd row 0.4, 4th row 0.2. Temporal organs short in tergal view, anterior part uplifted and curved strongly, length about 0.5 of shortest interdistance; small pistil posteriorly. Head cuticle faintly granular.

Antennae (Figure 54B): three segments, 1st one no setae, 2nd one 4 setae, 3rd one with branches *t* and *s* and 4 clavate setae with short pubescence, their relative lengths: $p = r = 10$, $p' = 3$, $p'' = 6$. Neither p''' nor *u*. Tergal seta *p* 1.2 times as long as tergal branch *t*. The latter branch very short barrel-shaped, as wide as long and 0.3 of the length of sternal branch *s*, that branch 1.4 times as long as its greatest diameter, anterodistal corner more truncate than posterodistal one. Setae *q* as setae on 3rd segment, 0.4 of the length of *s*, *q'* more longish, 0.6 of the length of *s*. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, $bs_1 = 12$; $F_2 = 165$, $bs_2 = 17$; $F_3 = 130$, $bs_3 = 20$. F_1 6.7 times as long as *t*, F_2 and F_3 3.7 and 2.9 times as long as *s* respectively. Distal calyces, tube-like with helmet-shaped cover enclosing a small spherical capsule, distal part of flagella axes inconsiderably widened below calyces. Globulus *g* with thin stalk, spherical, ≈10 bracts, capsule large with flattened bottom; width of *g* 1.6 times as long as the greatest diameter of *t*. Antennae glabrous.

Trunk (Figure 54C): body cylindrical with short legs. Sublateral and submedian setae of collum segment (Figure 54C) similar, short, simple, fungiform, stalk glabrous, hat with short erect pubescence; sternite process extended anteriorly and with small anterior incision; appendages short, subspherical, with thin flattened caps; process and appendages glabrous.

Setae on tergites as setae on tergal side of head; 4+4 setae on tergite I–III, 4+2 on IV. Tergites glabrous.

Bothriotricha (Figures 54D–F): relative lengths: $T_1 = 100$, $T_2 = 136$, $T_5 = 127$. All with short, dense, erect pubescence, T_1 (Figure 54D) broadly spatulate, T_2 (Figure 54E) and T_5 (Figure 54F) claviform with axes divided up into thick disks, T_2 with longish undivided distal end swelling, T_5 with globular one.

Legs (Figure 54G): all legs 5-segmented. Setae on coxa and trochanter claviform, with short pubescence. Tarsus of leg 5 (Figure 54G) tapering, two distal setae, one folioform, faintly pubescent, 0.3 of the length of tarsus, the other shorter, thin, pointed, glabrous.

Pygidium (Figure 54H).

Tergum: posterior margin undulated. Relative lengths of setae: $a_1 = 10$, $a_2 = 11$, $a_3 = 8$, $st = 1$; setae clavate, with short, dense, oblique pubescence, shortest on *st*. Distance $a_1–a_1$ 1.6 times as long as a_1; distance $a_1–a_2$ 0.2 of distance $a_2–a_3$; distance *st–st* 0.1 of the length of *st*

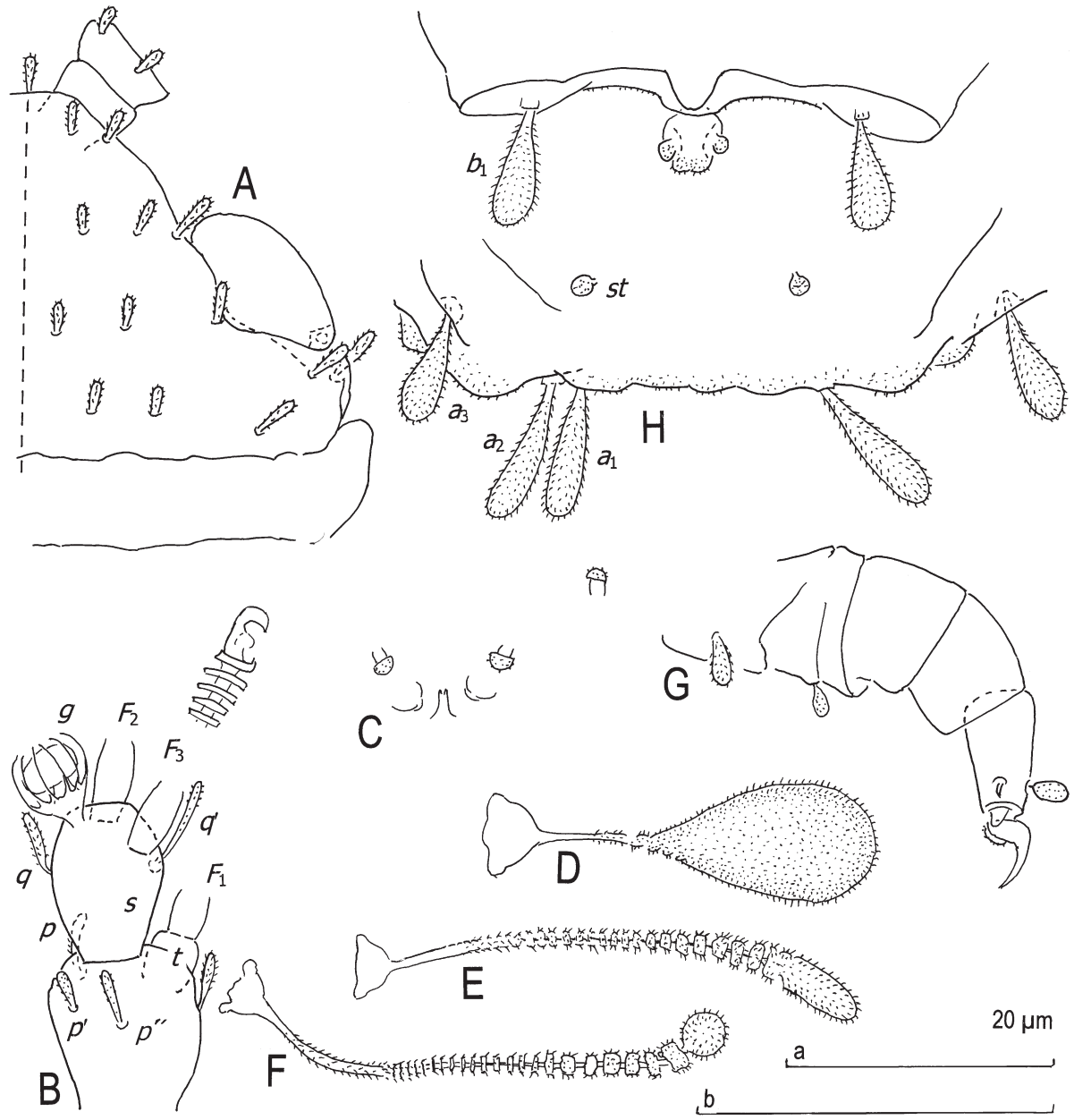

FIGURE 54 *Amphipauropus* sp., juv. 5: A, head, right part with basal two segments of antenna; B, left antenna, sternal view; C, collum segment, sternal view; D, T_1; E, T_2; F, T_5; G, leg 5, anterior view; H, pygidium, sternal view. Scale a: Figures A, C, G; b: Figures B, D–F, H.

and 0.9 of distance a_1–a_1. Cuticle faintly pubescent.

Sternum: posterior margin with large insertion areas for b_1 and two median lobes below anal plate, a low one nearest plate and a distinct almost triangular one protruding from lower margin of sternal plate. Relative lengths of setae (pygidial a_1 = 10): b_1 = 8. Neither b_2 nor b_3. The b_1 clavate, pubescence as on *a*-setae of tergum; b_1 0.3 of interdistance.

Anal plate (Figure 54H) small, spatulate, broadest in anterior half, 1.2 times as long as broad, posterior margin with shallow, median incision, lateral margins each with a short, rounded appendage pointing backward-downward from sternal side.

REMARKS

The Australian species is well distinguished from both the European *A. rhenanus* and the Canadian *A. sp.*, up to now the only material of the genus reliably described: from the former by the shape of the seta *q* on

the sternal antennal branch, the antennal globulus *g*, the bothriotricha T_1, the pygidial setae and the anal plate, and from the latter by the shape of the temporal organ of the head, the setae *q* and *q'* on the sternal antennal branch, the antennal globulus *g,* the bothriotricha and the pygidial setae and the anal plate.

Family Polypauropodidae Remy, 1932

Genus *Polypauropus* Remy, 1932

Polypauropus Remy, 1932: 300.

TYPE SPECIES

Polypauropus duboscqi Remy, 1932, by monotypy.

Polypauropus duboscqi Remy, 1932

Polypauropus duboscqi Remy, 1932: 290–300, figures 1–6; Remy, 1957b: 143, 144; Greenslade and Scheller 2002: 19.

DISTRIBUTION

Western Australia, Kimberley.

GENERAL DISTRIBUTION

P. duboscqi is subcosmopolitan: Canada, U.S.A.; Great Britain, France, Germany, Switzerland, Spain, Italy, Romania, Bosnia and Herzegovina, Greece, Morocco, Algeria, Israel, Canary Islands, Azores; Argentina; Ivory Coast, Angola, Kenya, Madagascar, Réunion, Mauritius; Sri Lanka.

REMARKS

So far three genera have been described in Polypauropodidae all by Remy, *Polypauropus, Fagepauropus* and *Polypauropoides* (diagnoses in Scheller 2008: 14, 15), the first one also reported from Australia, Kimberley Research Station in Western Australia (Remy 1957b). The family is represented in the material from Dwellingup too, but only by one single juvenile specimen. It is described below because it seems to belong to a genus not previously known. It may be most close to *Polypauropus* because it has a mediotergal plate in the head and all its legs are 5-segmented, but it lacks the pygidial setae t_1 and t_2, in this respect coinciding with *Fagepauropus* and *Polypauropoides*. However, it has different leg segmentation. It is also distinguished from *Polypauropus* by having three pairs of setae on the pygidial sternum (b_1, b_2, b_3), not two (b_1, b_3). To facilitate a future description of the new genus the specimen is described, but not named.

Polypauropodidae sp.

MATERIAL EXAMINED

Australia: *Western Australia*: 1 juv. 5, c. 22 km SE. of Dwellingup, Yarragil Brook site, in litter, 21 July 1981 (WAM T125598).

DESCRIPTION

Juvenile, 5 pairs of legs (Figures 55A–H)

Length: 0.35 mm.

Head (Figure 55A): tergal setae arranged in 4 transversal rows, clavate, blunt, annulate, with distinct hemispherical end-segment. Relative lengths of setae: 1st row: a_1 = 10, a_2 = 13; 2nd row: a_1 = 11, a_2 = 12, a_3 = 15; 3rd row: $a_1 = a_2$ = 13, a_3 = 15; 4th row: a_1 = 22, a_2 = 15, a_3 = 33, a_4 = 14. Ratio a_1/a_1–a_1 in 1st row 0.8, 2nd row 0.4, 3rd row 1.2, 4th row 0.5. Temporal organs short, ovoid in tergal view, 0.7 of shortest interdistance; no posterior pistil. Mediotergal plate 1.7 times as broad as long, spatulate, with shallow anteriomedian incision and narrow posterior half. Head cuticle glabrous.

Antennae (Figure 55B): three segments, 3rd one with 5 setae, *p*, *p′* and *p″* somewhat clavate, blunt, annulate, *p‴* rudimentary, *u* very short, cylindrical, *r* not found, relative lengths: $p = p' = 10$, $p'' = 3$, $u = 1$. Tergal seta *p* 1.4 times as long as tergal branch *t*. The latter branch short, widest in distal half, as wide as long and 0.6 of the length of sternal branch *s*, that branch about as long as its greatest diameter, anterodistal and posterodistal corners equally truncate. Setae *q* long, subcylindrical, blunt, annulate, 1.9 times as long as *s*, 1.8 times as long as *q'*. Relative lengths of flagella (basal segments included) and basal segments: F_1 = 100, bs_1 = 15; F_2 = 125, bs_2 = 19; F_3 = 110, bs_3 = 17. F_1 3.4 times as long as *t,* F_2 and F_3 2.7 and 2.4 times as long as *s* respectively. Distal part of flagella axes below end-organ not widened. End-organs consisting of 3 short and 2 longer cylindrical, glabrous bracts curved around capsule, the latter spherical on F_1, with flattened bottom on F_3. Upper globulus largest, with ≈8 bracts and capsule with flattened bottom, lower globulus with 5 bracts and spherical capsule. Bracts of upper globulus faintly pubescent, other parts of antennae glabrous.

Trunk (Figure 55C): setae of collum segment short, furcate, branches blunt, main branch annulate, secondary branch rudimentary, cylindrical, glabrous, sublateral setae 1.2 times as long as submedian setae; sternite process broad, anteriorly rounded; appendages conical, caps hemispherical with neck and collar; process with short pubescence and appendages distinctly pubescent.

Setae on tergites as setae on tergal side of head but thinner.

Bothriotricha (Figures 55D, E): three pairs, all with simple thin axes; pubescence on T_1 (Figure 55D) and T_2 simple, short, erect on proximal halves, increasing in length, ramose and whorled in distal half, on T_3 (Figure 55E) oblique, simple hairs only. Relative lengths of bothriotricha: T_1 = 100, T_2 = 94, T_3 = 156.

Legs (Figures 55F, G): all legs 5-segmented. Setae on coxa and trochanter (Figure 55F) simple cylindrical, blunt, annulate. Tarsus of leg 5 (Figure 55G) weakly tapering, two short setae, proximal one cylindrical, blunt, annulate, distal one folioform, with short

pubescence; proximal seta 0.1 of the length of tarsus and 0.6 of the length of distal seta.

Pygidium (Figure 55H).

Tergum: posterior margin broadly triangular with large rounded lobe between *st*. Relative lengths of setae: a_1 = 10, a_2 = 8, a_3 = 17, *st* = 6; setae cylindrical, blunt, annulate, all curved somewhat inward, a_2 and a_3 diverging, *st* converging. Distance a_1–a_1 1.1 times as long as a_1; distance a_1–a_2 ≈5 times as long as distance a_2–a_3; distance *st*–*st* 2.8 times as long as the length of *st* and 1.4 times as long as distance a_1–a_1. Cuticle glabrous.

Sternum: posterior margin straight. Relative lengths of setae (pygidial a_1 = 10): b_1 = 12, b_2 = 7, b_3 = 8. Setae

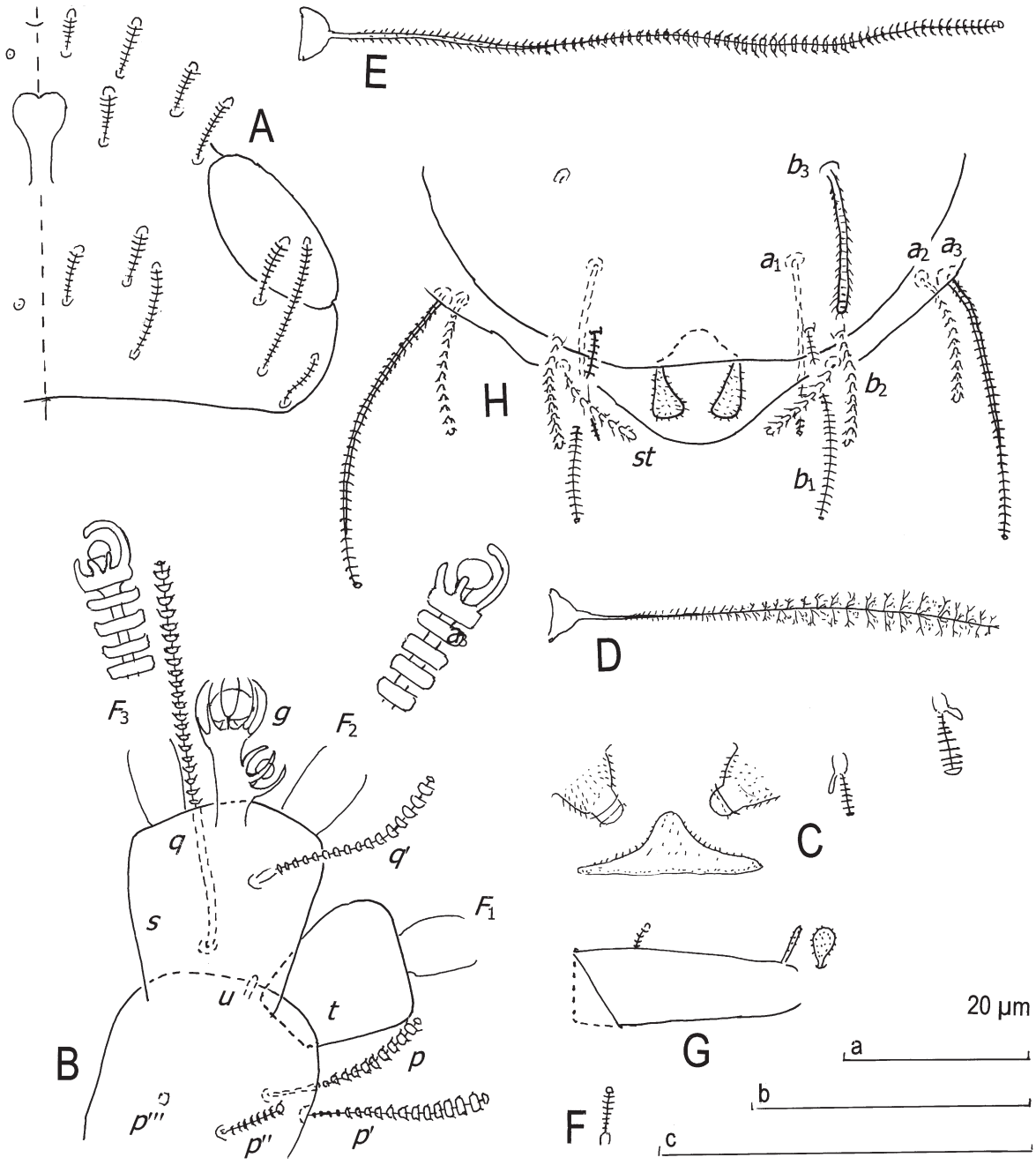

FIGURE 55 *Polypauropodidae* sp., juv. 5: A, head, median and right part; B, right antenna, sternal view: C, collum segment, median and left part, sternal view; D, T_1; E, T_3; F, seta on trochanter of leg 5; G, tarsus of leg 5, distal seta to the right; H, pygidium, sternal view. Scale a: Figures A, D–G; b: Figures C, H; c: Figure B.

cylindrical, blunt, annulate. b_1 0.9 of interdistance, clavate, pubescence as on *a*-setae of tergum; b_1 0.3 of interdistance, b_2 4 times as long as distance b_1–b_2, b_3 0.5 of interdistance.

Anal plate (Figure 55H) represented by two short, clavate, structures with short pubescence, length 0.8 of interdistance.

Family Antichtopauropodidae Scheller, 2011

Genus *Antichtopauropus* Scheller, 2011

Antichtopauropus Scheller, 2011a: 6–7, figures 22–35.

TYPE SPECIES

Antichtopauropus brevitarsus Scheller, 2011, by original designation.

Antichtopauropus brevitarsus Scheller, 2011

Antichtopauropus brevitarsus Scheller, 2011a: 6–8, figures 22–35.

DISTRIBUTION

Western Australia, Mundaring Shire. Not known outside of the type locality.

Antichtopauropus relativus sp. nov.

urn:lsid:zoobank.org:act:185F8163-9AC9-4E90-9811-EAE71C4B6534

Figure 56A–K

MATERIAL EXAMINED

Holotype

Australia: ***Western Australia*****:** ad. 9(□), c. 11 km SSE. of Dwellingup, Murray River site, in soil, 18 October 1980 (WAM T125595).

Paratypes

Australia: ***Western Australia*****:** 3 ad. 9(2□, 1□), c. 22 km SE. of Dwellingup, Yarragil Brook site, in soil, 15 March 1981 (WAM T125596).

Non-types

Australia: ***Western Australia*****:** 1 ad. 9(□), Murray River site, in litter, 25 July 1980; 1 ad. 9(□), 1 subad. 8(□), same data except 21 September 1980; 9 ad. 9(3□,6□), 4 subad. 8(□), 4 subad. 8 (1□, 1□, 2 sex?), 2 juv. 5, Yarragil Brook site, 15 April 1981; 3 ad. 9(□), 1 subad, 8(□), 1 juv. 6, same data except 19 April 1981; 1 ad. 9(□), same data except 19 May 1981; 4 ad. 9(3□, 1□), 2 subad. 8(□, □), same data except 22 June 1981; 5 ad. 9(2□, 3□), 1 subad. 8(□), same data except 20 July 1981; 15 ad. 9(8□,7□), Murray River site, 28 July 1981; 1 subad. 8(□), Yarragil Brook site, 31 August 1981; 1 ad. 9(□), 1 juv. 5, Murray River site, 22 September 1981; 1 ad. 9(□), 1 subad. 8(2□), same data except 28 September 1981; 1 juv. 5, same data except in soil, 18 July 1980; 1 ad. 9(□), 3 subad. 8(1□, 2□), 2 juv. 5, 1 juv. 3, same data except 25 July 1980; 1 subad. 8(□), 4 juv. 5, 4 juv, 3, same data except 18 August 1980; 1 ad.9(□), same data except 1 September 1980; 2 juv. 5, 2 juv. 3, same data except 20 September 1980; 1 ad.9(□), 1 juv. 3, Yarragil Brook site, 16 October 1980; 1 subad.8(□), same data except 25 February 1981; 2 ad. 9(□, □), 1 juv. 6, 1 juv. 5, Murray River site, 19 May 1981; 3 ad. 9(2□, 1□), 1 subad. 8(□), same data except 27 May 1981; 1 subad. 8(□), same data except 29 June 1981; 1 ad. 9(□), same data except 28 July 1981; 1 juv. 3, same data except 22 September 1981; 2 ad. 9(□), same data except 29 September 1981.

DIAGNOSIS

Antichtopauropus relativus sp. nov. is close to *A. brevitarsus* Scheller (Scheller 2011a) from Western Australia (Mundaring, Voyager Quarry). They can be distinguished by the number of setae on the 4th antennal segment, with *p‴* and sometimes *u* too in *A. relativus*, no such setae in *A. brevitarsus*, by the shape of the antennal globulus *g*, unsymmetrical, not regular, the shape of the sternite process of the collum segment, large with anterior incision, not small and blunt anteriorly, by the cuticular surface structure of the tergites, with round spots between the protuberance, not glabrous, the shape of the middle swelling of the bothriotricha T_3, fusiform, not similar to an inverted cone, and by some dissimilarities in the pygidial characters: setae a_3 of the tergum striate, not glabrous, setae b_1 blunt, not pointed, and the shape of the anal plate, lateral sides evenly convex with posterolateral corners, not knoblike posteriorly directed extensions in the middle of the lateral sides.

DESCRIPTION

Adult male holotype (and paratypes)

Length: (0.79–)1.08 mm.

Head (Figures 56 A, B): a median, anterior, clavate seta between antennal bases and at least 13 fungiform protuberances and two thin posterolateral setae on each half of tergal and laterotergal side of head. Temporal organs (Figure 56B) laterosternal, almost invisible from above, subcircular, no appendages, anterior margin uplifted with one broad and two small bulges, small pistil posteriorly. Head cuticle glabrous.

Antennae (Figure 56C): segment 3 with rudimentary *g′*; segment 4 with 5 setae, all but *p‴* cylindrical, striate–annulate, blunt, *p‴* rudimentary, glabrous; their relative lengths *p* = 10, *p′* = (16–)23, *p″* = (16–)29(–23), *p‴* = (1–)2, *r* = (9–)13, *u* = (2–)4; the *p* = 0.3(–0.4) of the length of tergal branch *t*. The latter fusiform, distally somewhat obliquely truncate, (2.3–)2.4(–2.7) times as long as greatest diameter and as long as (–1.1) times as long as sternal branch *s*, that branch (2.1–)2.3 times as long as greatest diameter, anterodistal corner more truncate than posterodistal one. Seta *q* straight,

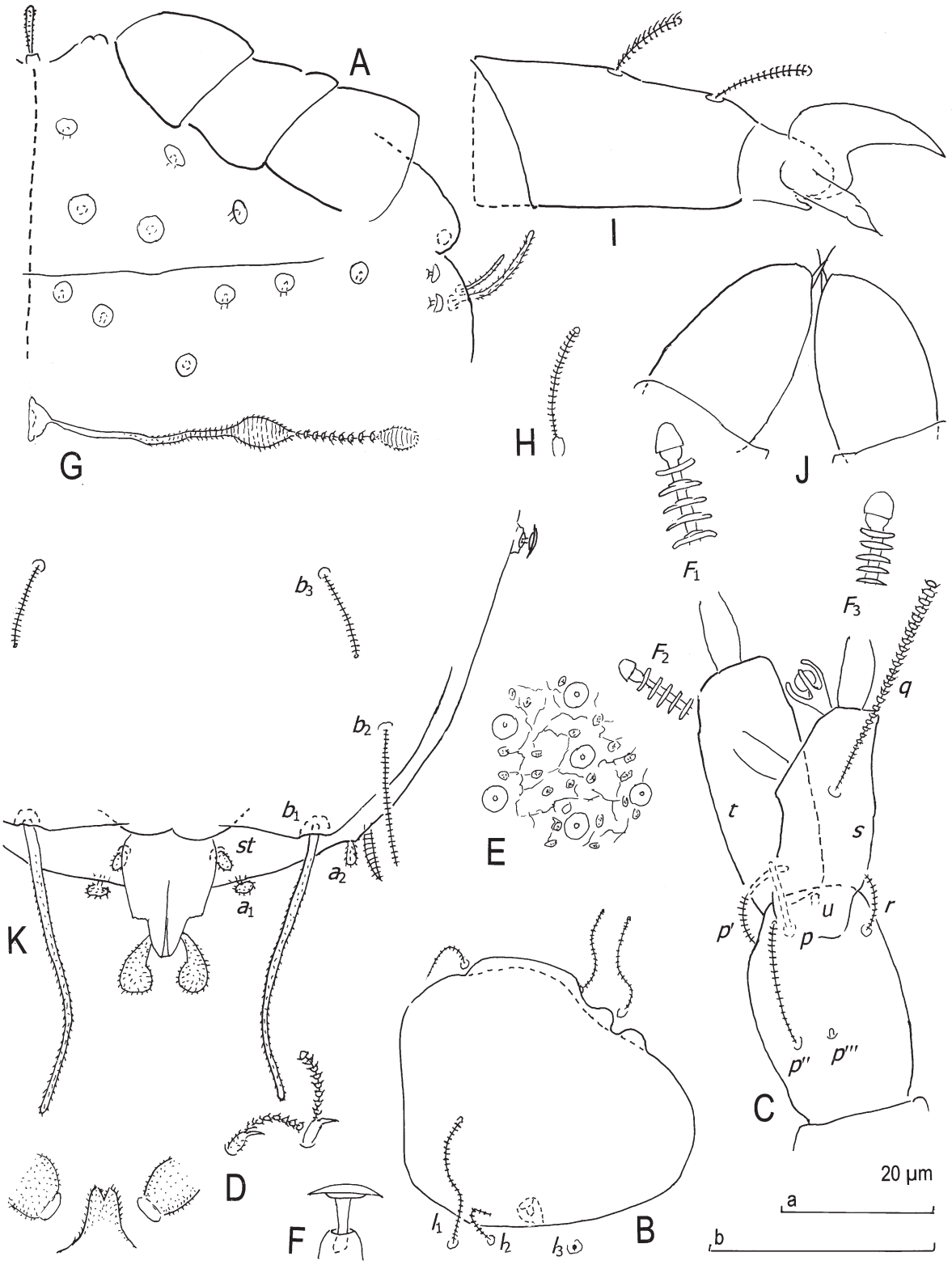

FIGURE 56 *Antichtopauropus relativus* sp. nov.: holotype ad. 9(□): A, head, right half, tergal view; B, temporal organ, lateral view; C, left antenna, sternal view; D, collum segment, median and left part, sternal view; E, tergite II, cuticula with fungiform organs and round spots in between, tergal view; F, fungiform organ; G, T_3; H, seta on trochanter of leg 9; I, tarsus of leg 9; J, genital papillae, anterior view; K, pygidium, median and right part, tergal view. Scale a: Figure A, B, D, F, G, I; b: Figures C, H, J.

cylindrical, blunt, annulate, (0.8–) as long as the length of *s*. Relative lengths of flagella (base segments included) and base segments: F_1 = 100, bs_1 = (7–)8; F_2 = (38–)40(–45), bs_2 = 7(–8); F_3 = (84–)87(–89), bs_3 = (7–)8. F_1 (3.6–)3.7(–4.1) times as long as *t*, F_2 and F_3 1.7(–1.9) and (3.8–)3.9(–4.1) times as long as *s* respectively; F_2 thinnest. Distal calyces helmet-shaped, axes widened only just below calyx. Globulus *g* small, 1.4 times as long as wide; 4 bracts, capsule small, spherical; width of *g* 0.4 of greatest diameter of *t*. Antennae glabrous.

Trunk (Figures 56D–F): setae of collum segment (Figure 56D) furcate; primary branch cylindrical, blunt, annulate, secondary branch rudimentary, pointed, glabrous; sternite process with broad anterior lengthening, incised anteriorly; process and appendages with dense, short pubescence.

Tergites III–VI with shallow indentations around insertion pits of bothriotricha. Tergites distinctly sclerotized, true setae absent but surface densely covered with fungiform organs (Figure 56G), surface between fungiform organs with round spots (Figure 56E).

Bothriotricha (Figure 56G): relative lengths: T_1 = 100, T_2 = (85–)109, T_3 = (66–)70, T_4 = 80(–84), T_5 = (87–)108. Axes of all but T_3 thin, with very short pubescence. The T_3 (Figure 56F) with thicker axis and two swellings, one just outside the middle, fusiform, the other distally, length 0.2 and 0.1 of the length of bothriotrix respectively, swellings with short but distinct pubescence in whorls.

Legs (Figures 56H, I): short. Setae on coxa and trochanter (Figure 56H) simple, cylindrical, striate. Tarsi short, those of leg 9 (Figure 56I) (1.6–)1.9(–2.0) times as long as greatest diameter, setae cylindrical, blunt, annulate, proximal seta in the middle of dorsal side, 0.2 of the length of tarsus and 0.7 of the length of distal seta. Cuticle of tarsi faintly pubescent.

Genital papillae (Figure 56J): glabrous, roundly conical, (1.3–)1.4 times as long as greatest diameter, length of seta 0.5 of the length of papilla.

Pygidium (Figure 56K): glabrous.

Tergum: posterior margin evenly rounded. Setae short, relative lengths: a_1 = 10, a_2 = 10(–11), a_3 = 12(–15), *st* = 7. a_1, a_2 and *st* short, clavate pubescent, a_3 lanceolate, faintly striate. Distance a_1–a_1 0.4 of the length of a_1; distance a_1–a_2 3 times as long as distance a_2–a_3; distance *st*–*st* 6.0 times as long as *st* and 1.9(–2.1) times as long as distance a_1–a_1.

Sternum: posterior margin with a low bulge with median incision just below anal plate. Three pairs of thin setae, b_1 and b_2 with indistinct striation distally, b_3 densely annulate, their relative lengths (pygidial a_1 = 10): b_1 = 62(–83), b_2 = (30–)32(–42), b_3 = 20(–22). The b_1 0.9 of (– as long as) interdistance, b_2 0.7(–0.8) of distance b_1–b_2, b_3 0.3 of interdistance.

Anal plate (Figure 56K) widens from its base with convex lateral margins, a wedge-shaped lobe projecting backward inside two posterolateral corners, lobe as long broad with two curved bladder-shaped appendages projecting outward-backward from posterior part, appendages 0.4 of the length of plate, curved inward and with short but distinct pubescence.

ETYMOLOGY

From the Latin relativus = akin to, near to (referring to the similarities to *A. brevitarsus*).

Family Brachypauropodidae Silvestri, 1902

Genus *Borneopauropus* Scheller, 2008

Borneopauropus Scheller, 2008: 18, 19.

TYPE SPECIES

Brachypauropoides penanorum Scheller, in Scheller et al. 1994 by original designation.

Borneopauropus dignus Scheller, 2009

Borneopauropus dignus Scheller 2009b: 325–328, figures 192–206.

DISTRIBUTION

Tasmania, in the northwest: Savage River, Bradshaws Road and Hibbs Lagoon; in the northeast: Mt Michael and Simons Creek; in the southeast: Big Sassy Creek and Sandspit River. Not known outside Australia.

Family Eurypauropodidae Ryder, 1879

Genus *Samarangopus* Verhoeff, 1934

Samarangopus Verhoeff, 1934: 189.

TYPE SPECIES

Eurypauropus jacobsoni Silvestri, 1930, by original designation.

Samarangopus speciosus (Harrison, 1914) n. comb.

Figure 57A–G

Eurypauropus speciosus Harrison 1914: 624–627, plate 71, figures 18–21.

Australopauropus speciosus (Harrison): Bagnall 1935: 628; Greenslade and Scheller 2002: 3, 4.

DISTRIBUTION

New South Wales, Sydney, Lobster Beach and Broken Bay. Not known outside Australia.

DIAGNOSIS

Samarangopus speciosus may have a sister-species in *S. constellatus* Scheller, described from New Zealand,

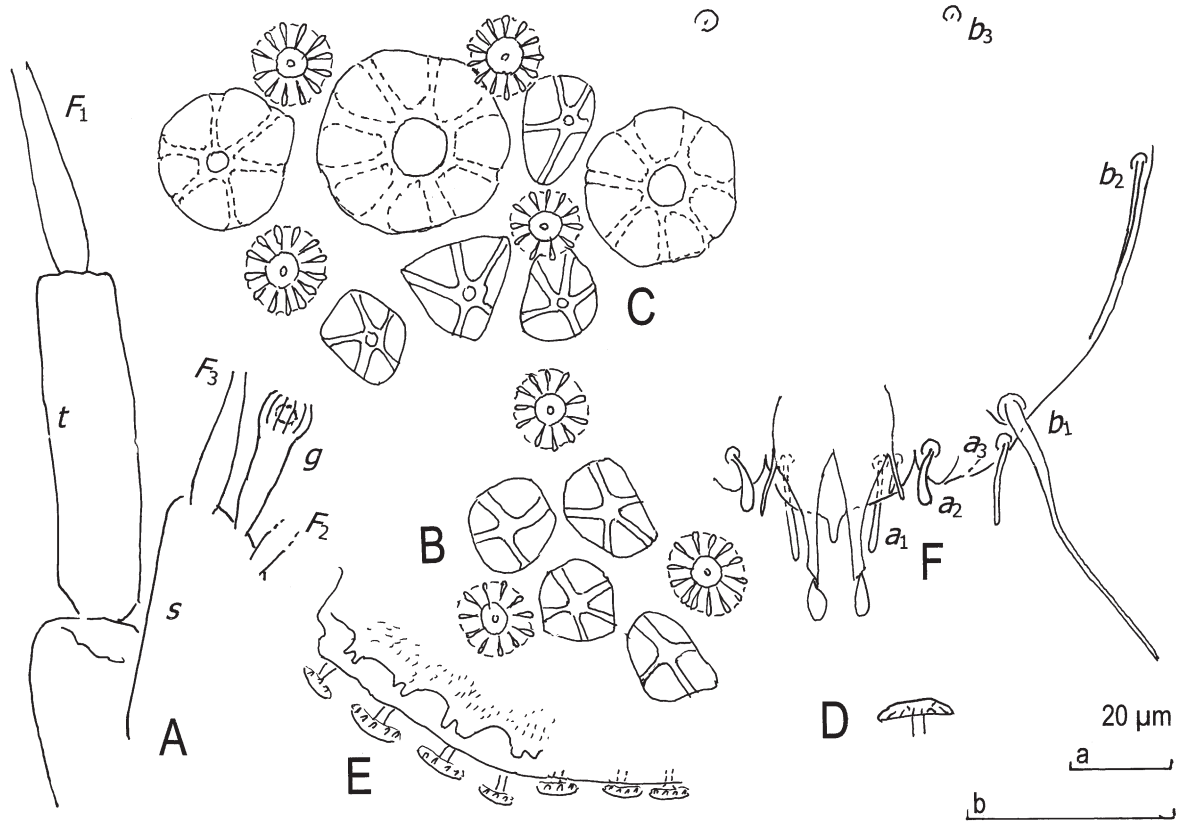

FIGURE 57 *Samarangopus speciosus* (Harrison), holotype: A, part of antenna; B, tergite I, cuticular pattern, tergal view; C, tergite III, cuticular pattern, tergal view; D, funnel-shaped organ from tergite III, lateral view; E, tergite VI, left posterior corner, sternal view; F, pygidium, median and left part, sternal view. Scale a: Figure E; b: Figures A–D, F.

North Island (in Scheller and Minor 2010). The two species are strikingly alike but can be distinguished in the following manner. The antennal globulus *g* is 3.2 times as long as its greatest diameter in *S. speciosus*, 1.7 in *S. constellatus,* the wheel-shaped organs on the cuticle of the tergites are raised, fungiform in lateral view and have 12–15 supporting spokes, not low with 8 spokes; the tarsus of the last pair of legs is only a little tapering, not almost conical; the anal plates are different too, posterior incision V-shaped, not U-shaped, and the bladder-shaped appendages of the submedian branches reach 0.2 of the length of the plate, not almost as long as the plate.

Two more species show similarities with Harrison's species, *S. umbraculus* Scheller from New Caledonia (Scheller 1993) and *S. jemlahicus* Scheller from Nepal (Scheller 2000). Both have a similar mesh-pattern on the tergites but the cuticular organs in between are different, similar to umbrellas with a central funnel-shaped canal in the former and star-shaped organs on small knolls without visible canal inward in the latter. They are also deviating in many characters of the antennae and pygidium.

DESCRIPTION

Antennae (Figure 57A): Glabrous, tergal branch *t* cylindrical, length 33 µm, diameter 9 µm, 3.6 times as long as greatest diameter, basal segment of F_1 0.6 of the length of *t*. Antennal globulus *g* length = 16 µm, diameter 5 µm, 3.5 times longer than greatest diameter, capsule globular, bracts thin.

Trunk (Figures 57B–E): tergites with thick cuticle, on almost whole the surface with numerous in tergal view wheel-shaped brown organs; these organs with a central vertical canal surrounded by small supporting structures arranged as spokes in a wheel and lying in the walls of the funnel (Figures 57B–E). These organs, in lateral view fungiform, borne on connection points of irregularly arranged, distinct strengthening band or ridges in the cuticle. Between them hollows in the cuticle with star-shaped pattern of horizontal canals in the bottom.

Legs: tarsus of last pair of legs, length = 48µm, greatest diameter = 16 µm, main claw = 20 µm.

Pygidium (Figure 57F). *Tergum*: Posterior margin with large median semi-circular lobe projecting backward, lobe with distinct posteriomedian point. Setae glabrous, *a*-setae a little converging, a_1 and a_2 somewhat clavate, *st* and a_3 cylindrical. Lengths of setae: $a_1 = 9$, $a_2 = 5$, $a_3 = 8$, *st* = ?2 µm. Distance a_1–$a_1 = 10$, a_2–$a_2 = 20$, a_3–$a_3 = 65$, a_1–$a_2 = 5$ µm, a_2–$a_3 = 7$, *st*–*st* = 11 µm. Distance a_1–a_1 1.1 times as long as a_1–a_2 0.7 of distance a_2–a_3, distance *st*–*st* ≈5 times longer than *st* and ≈distance a_1–a_1.

Sternum: Broader than long, posterior margin between b_1 almost straight. Setae tapering, b_1 with thick base, length = 35, b_2 thin pointed, length = 18 µm, thin, pointed, b_3 = ?. Distance b_1–$b_1 = 35$, b_1–$b_2 = 25$, b_3–b_3 = 24 µm; b_2 = 0.7 of distance b_1–b_2; b_1 as long as distance b_1–b_1, b_2 0.7 of distance b_1–b_2.

Anal plate longish, broadest in anterior part, lateral margins convex; distal part cleft by a deep V-shaped incision into two slender, tapering branches, each branch with a small, bladder-shaped appendage, length 0.2 of the length of the plate; lateral extensions thin, cylindrical, 0.3 of the length of plate.

REMARKS

The species is poorly described, and the type specimen, an adult male, in the collections of the Australian Museum, Sidney (Number KS041398), is parted and the pieces strongly flattened. Harrison's description could be amended only in those features listed above.

CHARACTERISTICS OF TWO INVESTIGATED AREAS

In studies of soil fauna pauropods are often overlooked due to their small size and low abundance compared with many other microarthropods. In Australia surveys of two forest types only have supplied us with material rich enough to get a picture of the present day fauna, the temperate rainforests in Tasmania, 1,076 specimens (Scheller 2009b, 2011a) and the northern jarrah forests near Dwellingup in Western Australia, 4,604 specimens reported for above. Though the two investigations are not fully comparable they are valuable for the understanding of the species composition.

In the temperate rain forests most species were collected in upper horizons under moss and in litter, in the jarrah forest the majority of specimens were found in samples from the underlying soil. Together with differences in soil structure this can have had influence on the species composition of the samples. Species with small body size (e.g. *Decapauropus, Nesopauropus, Amphipauropus*) seem to be more sensitive to changes in the humidity than larger ones (e.g. *Pauropus, Stylopauropus, Stylopauropoides*) and tend to be more common in denser soils than in looser material.

In the Tasmanian survey (Coy et al. 1993) 19 different rain forest sites were collected in 1989-1990 and several collecting methods were used, Tullgren funnel extraction of soil, moss and leaf litter, pitfall trapping, yellow pan tracking, sweeping hand collection, pyrethrin knock down of tree trunks, hand collecting.

The material from the jarrah forest (Postle et al. 1991) was collected in connection with a survey of soil and litter invertebrate species from two lateritic sites near Yarragil Brook, and one on the banks of the Murray River with loam soil, all in the northern jarrah (*Eucalyptus marginata*) forests near Dwellingup. The sites were sampled at monthly intervals over a period of 16 months in 1980-81 with one single collecting method, a multiple canister heat extractor funnel.

As expected from earlier surveys the world around Pauropodidae was the most diverse family in both surveys, 95 and 98% of the named species in the rainforest and jarrah respectively. In the rainforest 19 species were found belonging to six genera in two families (in Pauropodidae: *Pauropus, Allopauropus, Decapauropus, Stylopauropoides, Nesopauropus;* in Brachypauropodidae: *Borneopauropus*). Seventeen species were new to science, two only, 10%, earlier known from outside Tasmania.

In the jarrah forest 58 named species in 9 genera in three families were collected (in Pauropodidae: *Pauropus, Allopauropus, Decapauropus, Juxtapauropus, Hemipauropus, Stylopauropoides, Rabaudauropus, Nesopauropus,* in Polypauropodidae: *Polypauropus,* and in Antichtopauropodidae: *Antichtopauropus*). In addition juveniles of two more species appeared which unfortunately were not possible to name, in a fourth family, Amphipauropodidae, *Amphipauropus* sp., and one species belonging to a probable new genus in Polypauropodidae. Only seven of the 58 named species had been described earlier, four of them (7%) known from outside Australia.

The diversity both in species as well as in genera and families was greater in the western jarrah forest than in the Tasmanian temperate forest. Most species were found in *Decapauropus*, 37 and six species, 64% and 32% respectively of the total number of named species, next *Allopauropus* six and two species, 10% and 11% respectively, and *Pauropus*, with four and two species, 7% and 11% respectively, these three genera covering more than 4/5 of the species in the jarrah forest. In the temperate rain forest these genera had together about half of the total number of species. Because *Decapauropus* in almost all collections the world around is the most diverse genus the low value in the temperate rain forests, 32%, is notable. Its place as most diverse genus was taken there by *Stylopauropoides* which dominated with seven species, 37 % of the total number there. The higher number of *Decapauropus* species in the jarrah forest may to some part not show the true situation but may reflect the more intense sampling of the pure soil horizon there. In *Decapauropus* the body size is most often small and the species mainly

soil-living, in *Stylopauropoides* the species are larger generally and more often occurring in loser material e.g. in litter and under moss.

Of the 11 genera found in these two surveys five (*Pauropus, Allopauropus, Decapauropus, Stylopauropoides, Nesopauropus*) are common to both, all in Pauropodidae and widely distributed outside Australia. Five genera (*Juxtapauropus, Hemipauropus, Rabaudauropus, Amphipauropus, Antichtopauropus*) are only in the collection from the jarrah forest, however, all but the last one with wide extra-Australian distribution. One single genus, *Borneopauropus,* has not yet been collected outside the temperate rain forest but its occurrence in Thailand, Indonesia and Malaysia indicates that it may be in Australia too. The species number in the jarrah is almost three times higher than in the temperate rainforest and the number of genera is almost doubled. Because no species so far have been found in both areas the local endemism seems to be high.

Four of the genera so far known from Australia, *Stylopauropus, Kionopauropus, Polypauropus, Samarangopus*, have neither been found in the jarrah nor in the temperate rain forest.

SOME AREA RELATIONSHIPS

The Pauropoda in Australia are to the greatest part not investigated and most species still unknown. As is clear from above so far only two environments have been investigated, the Tasmanian temperate rainforest and a jarrah forest in Western Australia. All other records are restricted and mainly accidental so at present it is too early to discuss from where the fauna can be derived and how it has developed,

However, though the wide distribution scarcely can be conceived without assuming passive dispersal pauropods have several qualities highly estimated by biogeographers and are certainly of great biogeographical significance: they are strictly terrestrial, they are soil-living and adapted to an on the whole uniform type of environment, they are dependent upon sustained conditions of moisture and humidity in all developmental stages and they cannot retain their vitality after drying and become active with renewed water supply, they cannot encyst. Their vagility seems also to be exceptionally limited, they cannot migrate and they probably disperse mainly by slow penetration and they are as far as known not wind-borne.

Referring to the great biogeographical significance of the group some comparisons with surrounding areas are justifiable even if the knowledge of the pauropods in them, and from other parts of the world, is partly most patchy. From the following more or less neighbouring areas, there are studies in such an extent that limited comparisons may be possible, but only if remembering that collecting seldom has covered larger areas. Because one single species is known from New Guinea no comparisons can be made in that direction. From the following more or less neighbouring areas, there are studies in such an extent that limited comparisons may be possible, but only if remembering that collecting seldom has covered larger areas.

NEW ZEALAND

Data presenting pauropods from New Zealand appeared for the first time in a paper by Hilton (1943), followed in the 1950's by three publications by Remy (1952c, 1956a,c) and then two recent papers with identification made by the present author(Scheller and Minor 2010; Scheller and Barratt 2012).

At present 29 species are known, five of them shared with Australia, *Pauropus dolosus, Allopauropus maoriorum, Juxtapauropus dugdalei, Stylopauropoides ringueleti* and *S. tiegsi*, all belonging to genera with wide ranges. Eight genera are common, *Pauropus, Allopauropus, Decapauropus, Juxtapauropus, Stylopauropoides, Nesopauropus, Borneopauropus* and *Samarangopus* but there are also three genera in New Zealand not yet found outside (in Pauropodidae *Ataktopauropus* and *Pounamupauropus*, in Eirmopauropodidae *Eirmopauropus*). In addition one of the genera occurring in New Zealand, *Brachypauropus*, is a wide range genus which might be in Australia too.

NEW CALEDONIA

As to New Caledonia there are two studies only. Remy described in 1954 *Samarangopus browni* from there and in 1993 the present author could report 22 species in eight genera, *Allopauropus, Decapauropus, Pauropus, Ferepauropus, Rabaudauropus, Stylopauropoides, Hemipauropus* and *Samarangopus,* in the two families, Pauropodidae and Eurypauropodidae. The later study covered many different parts around whole the island. All the genera known are widely distributed and all but one, *Ferepauropus*, are in Australia too. All the species but one, *Allopauropus maoriorum*, were new to science indicating a high local endemism.

INDO-AUSTRALIAN ARCHIPELAGO

The islands of Further India in Indonesia, Philippines and Malaysia are only partly investigated (Scheller et al. 1994, Scheller 2001, 2003, 2007b, 2009aS144) but five families have been reported, three of them shared with Australia. Among 51 known species only one has also been collected in Australia, the wide-spread tropical *Decapauropus proximus*. Of the genera so far known only two have not yet been found in Australia, but they are both expected to be there, *Colinauropus* and *Sphaeropauropus*, the former known from Réunion, Mauritius, Philippines and Japan, the latter in an area from Nepal and Réunion in the west to Japan and Caledonia in east.

CONTINENTAL SOUTHEAST ASIA

There has been a great deal of speculation about the

biogeographical relationships between the faunas of Australia and south-eastern Asia. As to the Pauropoda there are distinct similarities in the set of families and genera, but a few similarities only on the species level. Twenty-nine species have been reported from Thailand, partly from the island Koh Chang near the coast of the Gulf of Thailand (Hansen 1902) and partly from Doi Inthanon in northwest (Scheller 1995, 2011), and from Vietnam nine other species (Remy 1933; Scheller 2004), together 38 species. No species are shared with Australia but most families and genera are the same. Five of the seven genera are in Australia, *Pauropus, Allopauropus, Decapauropus, Borneopauropus* and *Samarangopus*, and a sixth one, *Sphaeropauropus* has not yet appeared in Australian material but it is probably there, at least in the north.

MADAGASCAR AND NEIGHBOURING ISLANDS

A rich material has been worked up foremost by Remy and collaborators from the islands in the Indian Ocean, Madagascar (Remy 1953, 1956b,d, 1960b, Remy and Bittard 1957, Remy and Rollet 1960, Remy and Bello 1960), Réunion (Remy 1956b, 1957a; Scheller 2003), Mauritius (Remy 1959b) and Seychelles (Scheller 1982). These islands are rich in species, almost 150 recorded, most of them in widely distributed genera also occurring in Australia and the number of wide range species is very low. Several of the Australian species described above show taxonomical connections with species from these islands but this does not necessarily mean greater relationships, maybe more a consequence of the high number of species described from there than from other areas around Australia.

SOUTH INDIA AND SRI LANKA

A few species are known from South India (Remy 1961, Scheller 1976) and many species from Sri Lanka (Remy 1961, Scheller 1970).The picture of the preceding area is repeated here only with the difference that the proportion of widely distributed species is higher.

SOUTH AFRICA, SOUTHERN SOUTH AMERICA AND THE SOUTHERN COLD TEMPERATE ZONE

It is a fact that many plants and animals of the southern Australia, southern Africa and southern South America are related. Regrettably it cannot be established in what degree this also is valid for the Pauropoda because a few collections only have been identified from the southern parts of Argentina and Chile (Remy 1962b, Scheller 1968, 1974) and from South Africa five species only have been identified, all belonging to widely distributed genera and probably local endemics. The species known from southern South America belong all to widely distributed genera, one of them, *Perissopauropus*, not yet found in Australia. The similarities on the species level are inconsiderable.

Most families and genera in the areas reported for above are widely distributed and most of them are also shared with Australia. Exceptions are in the genera *Angkapauropus* in Pauropodidae, not yet known outside Thailand, *Ataktopauropus* and *Pounamupauropus* in Pauropodidae and *Eirmopauropus* in Eirmopauropodidae which are peculiar to New Zealand. The Australian pauropods seem to have developed mainly from old stocks of genera with wide ranges.

The similarities on the species level are few and then most often widely distributed species as *Decapauropus proximus* and *D. tenuis* both found in many tropical countries, *Pauropus lanceolatus, Stylopauropus brito* and *Polypauropus duboscqi* with large ranges in northern temperate regions. The real range is not known for none of them but they may be more or less subcosmopolitan and seem to be synanthropic species introduced (from Europe) and confined to "disturbed biotopes". Most species in all compared areas are not known outside the sites from which they were described.

RESULTS AND DISCUSSION

Presently there are six families recognised in Australia, Pauropodidae and Polypauropodidae with world-wide ranges, Brachypauropodidae and Eurypauropodidae both probably distributed globally though not yet reported from South America, Amphipauropodidae, the range of which is poorly known but indicating a subcosmopolitan distribution. Only one of the Australian families known now might be endemic, Antichtopauropodidae, not yet found outside Western Australia.

There are 15 genera in all, 10 of them in Pauropodidae. Most genera are widely distributed also outside Australia and some appear to be cosmopolitan – subcosmopolitan: *Pauropus, Allopauropus, Decapauropus*, *Juxtapauropus, Hemipauropus, Polypauropus, Rabaudauropus.* To this group further genera may be added when their ranges have been mapped, *Nesopauropus*, widely distributed in areas with warmer climates, *Kionopauropus* and *Amphipauropu*s both occurring in temperate as well as warmer areas. One genus, *Stylopauropus,* is characteristic of and widely distributed on the northern hemisphere and may be introduced to Australia (Melbourne, in garden).

Few genera have a distinctly southern character, but *Stylopauropoides* (with offshoots to Rwanda and Nepal) belongs here, with *Nesopauropus*, *Borneopauropus* and *Samarangopus* which are restricted to the southern hemisphere.

Species level diversity is impossible to predict because both the vegetation cover and the soil types are most heterogeneous over the continent, and because nova species was the major component in the studies of both the jarrah forest of Western Australia and the temperate

rainforest of Tasmania, it might be high.

Comparing the Australian pauropod fauna with those of surrounding areas shows great similarities on the family and generic levels, only one of its named genera have not yet been collected outside Australia, *Antichtopauropus*. On the other hand the similarities on species level are inconsiderable.

Australia being isolated for long time has offered optimal conditions for development of endemism among organisms with poor to mediocre means of dispersal. The well-known biogeographic isolation of Australia is reflected also in its pauropod fauna.

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