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 Stylopaupauropoides, 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 Stylopaupauropoides, 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.
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 Allopauroopus eumekei sp. nov. some lengths are given in μm. Range of variation in adult paratype(s) given in brackets (in subadults in Decapauroopus fruticulus sp. nov. and Juxtapauroopus 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 (Eurypauroopus speciosus). His records were then repeated by R.V. Chamberlin (1920), who however placed wrongly the Eurypauroopus 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, Australopauroopus, for Harrison's Eurypauroopus speciosus.

With the studies in the 1940s by Professor O.W. Tieg, Melbourne, and Professor P.A. Remy, Brunoy, the study of the Australian pauropods got a well-founded approach. Tieg 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” (Tieg 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, Tieg's Pauropus silvaticus, the two new species Stylopauroopoides tiegisi (Remy) and Stylopauroopus brito Remy and the two wide-spread Stylopauroopus 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 Kionopauroopus lituiger (Remy) and the wide-spread Polyopauroopus dubosciq Remy, and four species at the latter place, three new species, Decapauroopus notius Remy, D. spicatus Remy, Stylopauroopoides bornemisszi Remy, and Juxtapauroopus 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 Decapauroopus tumus Remy and three new species: Stylopauroopoides wungongensis, S. lapicidarius and Antichotopauroopus 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, Antichotopauroopidae, 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 Eurypauroopus 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 Harrison’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-sub cylindrical.

**Pygidium.** The $a$-setae of the pygidial tergum thin, tapering, pointed with oblique-depressed pubescence, $a_i$ 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 setae $b_i$, 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**


**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**


**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. insitatus* Scheller, 2009
8. *A. maiororum* Remy, 1956
9. *A. paramaororum* 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. haploites* sp. nov.
18. *D. heis* Scheller, 2009
19. *D. hispidus* sp. nov.
20. *D. hypopilos* 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. ramsculus* 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. unguulus* 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. litiuiger* (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.
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*)

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

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

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

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

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

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

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

5. Pygidial sternum with setae $b_1$ only; antennal globulus $g$ long-stalked .................................................. Stylopaurospus

6. Pygidial sternum with setae $b_1$ or $b_1+b_3$; antennal...
8. Pygidial sternum with two pairs of setae.  

9. Antennal globulus

10. Pygidial tergum with additional setae in stage subad. 8.

11. Antennal globulus

12. All legs 5-segmented ............................ 4

13. Pygidial sternum with additional setae in

14. Pygidial tergum with one pair of additional setae in

15. Pygidial sternum with two pairs of additional setae in

16. Pygidial tergum with two pairs of setae in

17. Sternal antennal branch with two setae,

18. Pygidial sternum with additional setae in

19. Pygidial tergum with one pair of additional setae in

20. Pygidial tergum with additional setae in

21. Sternal antennal branch with one seta,

22. Pygidial tergum with additional setae in

23. Antennal globulus

Family Pauropodidae Lubbock, 1867

Genus Pauropus Lubbock, 1867


TYPE SPECIES

Pauropus huxleyi Lubbock, 1867, by original designation.

Pauropus corniculans sp. nov.

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: \( a_1 = a_2 = 10; 2 \text{nd row: } a_1 = 11–13, a_2 = 15, a_3 = (13–14); 3 \text{rd row: } a_1 = (9–10), a_2 = 10; 4 \text{th row: } a_1 = (12–13), a_2 = (19–24), a_3 = 16–18, a_4 = 13–14; \) lateral group setae not studied. Ratio \( a_1/\alpha_1-a_4 in 1 \text{st row } 1.4, 2 \text{nd row } (0.5–0.6), 3 \text{rd row } 1.3–1.4, 4 \text{th row } 1.2. \)

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:

\[
F_1 = 100, b_1 = 5(–6), b_2 = 7(–8), F_3 = 35(–42), b_3 = 5(–6), F_4 = 83(–90), b_4 = 6(–7), F_5 = (2.5–)2.9(–3.2) \] 

Length as \( t, F_2 \) and \( F_6 \) (1.4–)1.6 and (2.3–)2.3 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

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.

U. Scheller

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

Genus Pauropus

Genus Pauropus Lubbock, 1867


Type species

Pauropus huxleyi Lubbock, 1867, by original designation.

Pauropus corniculans sp. nov.

urn:lsid:zoobank.org:act:98B87C89-446C-4405-87A6-47EA46914395

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.
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 setal a. 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 rounded to 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 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, 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 1I).

Tergum: posterior margin with broad, rounded lobe between $a_1$ and below it between $a_1$ 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$(-19)$, $a_3 = (19–20)(-25)$, $st = (7–9)$; $a_4$-setae cylindrical with oblique pubescence, somewhat diverging, $a_4$ and $st$ curved outward, the latter also tapering. Distance $a_1$-$a_2$ 2.0(–2.5) times as long as $a_1$; distance $a_2$-$a_1$ 1.3(–1.6) times as long as distance $a_1$-$a_2$; distance $st$-$st$ 1.9(2.0) times as long as $st$ and (0.8–)0.9 of distance $a_1$-$a_2$. 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, $b_4$ (1.3–1.5) times as long as interdistance; $b_2$ and (1.9–2.0)(-2.1) times as long as distance $b_1$-$b_2$, $b_3$ 0.8–0.9 of distance $b_1$-$b_2$.

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


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 $a_1$ 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 $a_1/a_2$ of 1st row 1.3(–1.7), 2nd row 0.6(–0.7), 3rd row 1.3(–1.8), 4th row 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 $p_0 = 10$, $p_1' = 6(-7)$, $p'' = r = 3$. 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: $F_1 = 100$, $b_1 = (3–)5$, $F_2 = (35–)44$, $b_2 = (3–)4$, $F_3 = (79–)88$, $b_3 = 5(–)7$. $F_1$, (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 posterior lateral setae on head, on posterior tergites about twice longer than on anterior ones; 4+4 setae on tergite I, 6+6 on II-IV, 4+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 $g$. Tergitae 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 $s$. Relative lengths of setae: $a_1 = 10$, $a_2 = (20–)121$, $a_3 = (18–)23$, $st = 7(–)8$; 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 $a_1–a_2$ 1.7(–)2.0 times as long as $a_1$; distance $a_1–a_3$ (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 $a_1–a_2$.

*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 $b_1–b_2$, $b_1$ 0.6(–)0.7 of distance $b_1–b_2$.

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 lanceolatus* sp. nov.

urn:lsid:zoobank.org:act:0C6DFC7F-8A22-4B4E-91C8-FFD6A8A5259E

Figure 3A–G

**MATERIAL EXAMINED**

*Holotype*

**Australia**: Western Australia: ad. 9( ), c. 22 km SE. of Dwellingup, Yarragal 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. lanceolatus* 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* 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 \(a_1/a_2–a_4\) 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 

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

**Sternum**: posterior margin between \(b_1\) rounded. Relative lengths of setae (pygidal \(a_1 = 10\)): \(b_1 = (38–)42\), \(b_2 = (19–)22\), \(b_3 = (23–)24(–)25\); \(b_4\) cylindrical, tapering, blunt, with short pubescence, \(b_5\) cylindrical, tapering, pointed, with strong depressed pubescence, \(b_6\) straight, cylindrical, \(b_7\) (1.4–)1.7 times as long as interdistance; \(b_8\) (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 claviform in *P. prolixus*, thin in *P. daviesi*, 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 posterior lobe of the pygidial tergum, and they are also alike in the shape of the posterior lobe of the pygidial tergum, and also as to the proportions of the tergial antennal branch and the pygidial setae *a*/a'.

**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*/*a* 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** = 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 posterdistal 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*4 2.8 times as long as *t*, *F*5 and *F*6 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 posterolateral 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 *s*. Relative lengths of setae: *a*1 = 10, *a*2 = (15–17), *a*3 = (17–19)(–21), *s* = 10; *a*-setae cylindrical, tapering, curved inward, sparsely pubescent, with oblique–depressed hairs, *s* thin, pointed, glabrous, curved outward, converging. Distance *a*/*a*1 1.8(–1.9) times as long as *a*1; distance *a*/*a*1 2.7(–3.0) times as
long as distance \( a_2 - a_1 \); distance \( st - st \) 1.8(–1.9) times as long as \( st \) and (as long as \( a_2 \)) 1.3 times as long as distance \( a_1 - a_2 \). Cuticle glabrous.

**Sternum:** posterior margin between \( b_1 \) straight. Relative lengths of setae (pygidial \( a_1 = 10 \)):

- \( b_1 = 31(–39)\) (39(–44)),
- \( b_2 = 15(–18)\) (23),
- \( b_3 = 22(–22)\) 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** Tieg, 1943


**DISTRIBUTION**

Victoria, Belgrave. Not known outside Australia.

**Pauropus vandiemeni** Scheller, 2009


**DISTRIBUTION**

Tasmania, in the northwest: Savage River, Bradshaws Road and Hibbs Lagoon; in the northeast: Mt Michael and Simons Road; in the southwest: Frodham 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).
**FIGURE 5**

*Allopauros 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, T3; 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.
postero-distal corner of the sternal antennal branch was
more truncate than the antero-distal 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
as long as
as long as the length of
sublateral setae 2.1(–2.5) times as long as submedian
secondary branch rudimentary, tapering, glabrous,
diameter of
Capsule subspherical; width of
stalk, 1.3(–1.4) times as long as wide, 5(–6) bracts,
stalk, (86–)92, 100,

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 \(a_p\). Tergites glabrous.

Bothriotricha (Figure 5E): relative lengths:

\[ T_2 = (100 –)128, T_3 = (112 –)120 \]

(5E), \( T_4 = (115 –)125(–131) \), \( T_5 = (120 –)147 \);
all with thin, straight, simple axes, \( T_2 \) 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 the tarsus and (1.6–)1.8 times as long as distal seta.
Cuticle of tarsus glabrous.

Pygidium (Figure 5I).

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 \(a_1–a_2\)
(2.0–)3.1(–2.4) times as long as \(a_1\); distance \(a_3–a_4\), 4(–6)
times as long as \(a_4–a_5\); distance \(st–st\) 1.4 times
as long as \(a_1–a_1\). 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 5I) glabrous, narrowest anteriorly,
about as broad as long, with rounded, triangular lobes
and a low, posterior lobe with straight sides and shallow
posteriori-median 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).
Allopaourops attenuatus sp. nov.

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

Figure 6A–H

MATERIAL EXAMINED

Holotype

Australia: Western Australia: ad. 9( )), 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 posterojmedian 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 4th rows of medium length, a1 and a4, of 4th row long. Relative lengths of setae, 1st row: a1 = 10, a2 = 10(–11); 2nd row: a1 = ?(10–13), a2 = 14, a3 = (12–)13(–18); 3rd row: a1 = a2 = (7–)8(–9); 4th row: a1 = (9–)11, a2 = (24–)26, a3 = (17–)21, a4 = (12–)13; lateral group setae (one paratype): l1 = 16, l2 = 10, l3 = 14. Ratio a1/a2/a3 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: F1 = 100, bs = 5; F2 = (55–)61(–74), bs = (4–)5; F3 = (55–)75(–82), bs = 5(–6). F1 = (2.0–)2.3(–2.5) times as long as t, F2 and F3 = 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 as, Tergites glabrous.

Bothriotricha: relative lengths: T1 = 100, T2 = (98–)113(–116), T3 = 124(–149), T4 = 157 and 165(–184), T5 = (189–)216(–258); all with thin axes, pubescence hairs short, simple, oblique, axes and pubescence strongest on T4 (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: a1 = 10, a2 = 7(–13), a3 = (10–)12(–14), st = 2; all directed posteriorly, a-setae tapering, pointed, with short pubescence, st clavate glabrous. Distance a1–a3 0.5 of the length of a1; distance a1–a3 2.3(–2.4) times as long as distance a1–a2; distance st–st (2.1–)2.5(–2.7) times as long as st and (0.6–)0.7 of distance a1–a2. 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 $b_1$ cylindrical, with short pubescence, $b_2$ curved inward and converging; $b_3$ 1.5–1.5 times as long as interdistance; $b_4$ (0.9–) as long as distance $b_1$–$b_2$, $b_5$ 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.


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 $a_1/a_2$–$a_4$ 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: $p = 10$, $p^t = (6–)7(–8)$, $p^n = r = 3$, $p^m = 2$, $u = 1$. 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 of 4th segment, (0.8–)0.9(–1.0) of the length of $s$. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, $b_5 = 5(–6)$, $F_2 = (64–)72(–74)$, $b_5 = 5$; $F_3 = (67–)73$, $b_5 = 5(–6)$. $F_1$ (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 $F_3$, only a little widened below calyx and first lamella in $F_1$ and $F_2$. 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, posteriormedian and left part, sternal view. Pubescence only partly drawn in G. Scale a: Figures E–G; b: Figures A–D, H.
FIGURE 8

*Allopauporus 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, T₃; 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 a1.

**Tergites**: glabrous.

**Pygidium** (Figure 7H).

**Tergum**: posterior margin evenly rounded. Relative lengths of setae: a1 = 10, a2 = 9(11), a3 = 13(16), st = 2; a-setae long, cylindrical, tapering most distally, with short pubescence, a1 and a2 also curved inward; st short, cylindrical ( somewhat clavate), striate, converging. Distance a1–a2, 0.5–0.6 of the length of a1; distance a1–a3, 5(7) times as long as distance a2–a3; distance st–st, 1.8–2.2 times as long as st and (0.9–1.1) times as long as distance a2–a3. Cuticle glabrous.

**Sternum**: posterior margin between b1 somewhat indented and with posteriomedian triangular lobe below anal plate. Relative lengths of setae (pygidial a1 = 10): b1 = 9(13), b2 = 5(7), b3 = 3; setae cylindrical, with short pubescence; b1, (1.4–)1.6 of interdistance; b2, 1.2(4–)1.4 of interdistance; b3, 0.4–0.5 of interdistance. The b1 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: a1 = 10, a2 = 12; 2nd row: a1 = 7, a2 = 18, a3 = 15; 3rd row: a1 = 9; 4th row: a1 = 10, a2 = 33, a3 = 17, a4 = 16; lateral group setae not studied. Ratio a1/a2–a3 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: p1 = 10, p′ = 6, p′′ = 4, p″ = 2, r = 3, u = 1. Tergal seta p1 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: F1 = ?, bs1 = 5, F2 = 67, bs2 = 6, F3 = 69, bs3 = 6 μm. The F1 and F2, 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 tergitic 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 \(a_t\).

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 \(T_6\) and proximal parts of \(T_7--T_9\) short oblique, on \(T_9\) (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: \(a_1 = a_2 = 10, a_3 = 14, s_1 = 1; a_1--a_3\), long, glabrous or with short pubescence distally, curved inward, \(s\) somewhat clavate, converging, with dense, short, pubescence. Distance \(a_1--a_2\) 0.6 of the length of \(a_1\); distance \(a_1--a_2=4\) times as long as distance \(a_2--a_3\); distance \(s--s\) 3.7 times as long as \(s\) and as long as distance \(a_1--a_2\). Cuticle glabrous.

**Sternum** posterior margin between \(b_1\) broadly indented and with low, triangular lobe below anal plate. Relative lengths of setae (pygidial \(a_1 = 10\)): \(b_1 = 10, b_2 = 5, b_3 = 2, a_1--a_3\), long, pubescence, \(b_1--b_3\) tapering, \(b_4\) cylindrical; \(b_1, 1.2\) times as long as interdistance, \(b_1, 1.2\) times as long as \(b_1--b_2, b_3, 0.2\) of interdistance.

Anal plate (Figure 8H, I) narrowing 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 eumeke of = of good length (referring to the long setae of the pygidial tergum).

**Allopauros foederatus** sp. nov.

urn:lsid:zoobank.org:act:F7988D1-39D9-4F28-8486-F9AE9185DAC0

**Figure 9A–H**

**MATERIAL EXAMINED**

**Holotype**

**Australia:** Western Australia: ad. 9( ), c. 22 km SE.

**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, lineiform, 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 \(a_1/a_2\) 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, b_1 = (7–9), F_2 = (38–40), b_2 = 5, F_3 = 80(–90), b_3 = 7. F_4 4.5 times as long as \(t\), \(F_5\) and \(F_6(1.6–)1.7 and 3.8(–4.5) times as long as \(s\) respectively.

Distal calyces of \(F_1\) and \(F_2\) somewhat flattened, those of \(F_2\) helmet-shaped; distal part of flagella axes widened considerably. 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 of Dwellingup, Yarragil Brook site, in soil, 18 March 1981 (WAM T125493).
**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, T₃; 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  
*Allopaurops 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; 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.
Allopauropus fraterculus Scheller, 2009


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


**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

**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 *Tj*, 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 \( s_t \), cylindrical, not clavate, and the shape of the setae \( b_t \) 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: \( a_1 = 10, a_2 = 11; 2\text{nd} \) row: \( a_1 = 13, a_2 = 18, a_3 = 15; 3\text{rd} \) row: \( a_1 = 13, a_2 = 16, a_3 = 15, a_2 = 7, a_3 = 23, a_4 = 18; \) lateral group setae not studied. Ratio \( a_1/a_2-a_1 \) 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 ptilst 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: \( F_1 = 100, b_s = 9(–11), F_2 = 36(–43), b_s = 7, F_3 = 84(–87), b_s = 9(–11), F_4 = 3.3(–3.6) \) times as long as \( t \). Tergal seta \( q \) and \( r \) as seta \( a \) of 4th segment but thicker, 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 cylindrical 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 \( a_t \). Tergites glabrous.

**Bothriotricha** (Figure 10E): relative lengths: \( T_1 = 100, T_2 = 99, T_3 = 102 \) and 104 (Figure 10E), \( T_1 = 102(–104), T_2 = (121–125); all with thin, straight, simple axes, \( T_1 \) and proximal parts of \( T_2-T_3 \) with short, oblique, simple hairs, distal halves of \( T_2-T_3 \) 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. Tarsae cylindrical, blunt, proximally 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 10I).

**Tergum:** posterior margin between \( a_t \), 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, \( a_t \) annulate, curved inward, \( a_2 \) and \( a_3 \) with oblique pubescence, the latter curved inward, \( s_1 \) rudimentary, converging, glabrous. Distance \( a_1-a_2 \) 2.2(–2.4) times as long as \( a_2; \) distance \( a_2-a_3 \) 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 \( a_2-a_3 \). Cuticle glabrous.

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


**TYPE SPECIES**

Decapauropus cuenoti Remy, 1931, by original designation.


**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.
occuring in many species the affinities now are impossible to trace. It is, however, well delimited 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 $a_1/a_2/a_3/a_4$ 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 $l$. Head cuticle glabrous.

**Antennae** (Figure 11B): segment 4 with four cylindrical annulate–striate setae; their relative lengths: $p = 10$, $p' = p'' = p''' = 3(–)4$, $r = (6–)7$. 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: $F_1 = 100$, $bs_1 = (7–)8$; $F_2 = (29–)33$; $bs_2 = 4(–)5$; $F_3 = (83–)87$, $bs_3 = 8(–)9$; $F_4 = (5.7–)6.6$ times as long as $t$, $F_1$ and $F_2$, (1.6–)1.7 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): collar 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 of the pygidium 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 $a_1$–$a_2$ (0.9–)1.1 times as long as $a_1$; distance $a_1$–$a_2$ (2.5–)3.5 times as long as distance $a_1$–$a_2$; distance $st$–$st$ (2.2–)2.3(–)2.9 times as long as $st$ and 1.4(–)1.7 times as long as distance $a_1$–$a_2$.

**Sternum:** posterior margin indented and with low rounded lobe below base of anal plate. Relative lengths of setae (pygidial $a_1 = 10$); $b_1 = (29–)37$; $b_2 = 14$; $s_1$–$s_3$ cylindrical, blunt, annulate–striate, $b_1$ (1.3–)1.5 times as long as interdistance, $b_1$ 0.8 of distance $b_2$–$b_3$.

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)


**DISTRIBUTION**

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

**Decapauropus attenuatus** Scheller, 2009


**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, T1; F, T3; 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 colom segment, furcate with short glabrous secondary branches in D. bipertitus, simple in D. terrestris, the bothriotricha Tᵣ, 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 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: a₁ = 10, a₂ = (9–)10; 2nd row: a₁ = (12–)14(–15), a₂ = (19–)21, a₃ = (14–)17; 3rd row: a₁ = (9–)11, a₂ = (14–)16; 4th row: a₁ = 10(–11), a₂ = (20–23)–(25), a₃ = (21–23), a₄ = 11(–13); lateral group setae not studied. Ratio a₁/a₂/a₃/a₄ 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 oval, 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: F₁ = 100, bs₁ = (9–)11; F₂ = (74–)83(–89), bs₂ = (9–)11; F₃ = (79–)90, bs₃ = (10–)12. F₁ (2.8–)2.9(–3.2) times as long as t, F₂ and F₃ (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 a₁. Tergites glabrous.

Bothriotricha (Figures 12E, F): relative lengths: T₁ = 100, T₂ = (104–)106(–107), T₃ = (94–)103(–107), T₄ = (124–)125(–127), T₅ = (150–)162(–170); axes simple, all but T₁ thin, pubescence hairs simple, oblique, except on most distal part of T₁ (Figure 12E), T₃ and T₄ there erect; axes of T₁ 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: a₁ = 10, a₂ = (8–)9, a₃ = 14(–15), st = 6(–7); setae almost straight, cylindrical, blunt, with short pubescence, st cylindrical (a little clavate), with short pubescence, a₁ and st converging. Distance a₁–a₂ 0.8(–0.9) of the length of a₂; distance a₁–a₃ 1.7(–2.1) times as long as distance a₁–a₂; distance st–st 1.8(–2.0) times as long as st and 1.3(–1.5) times as long as distance a₁–a₂, Cuticle glabrous.

Sternum: posterior margin between b₁ indented shallowly and with low broad lobe below anal plate. Relative lengths of setae (pygidial a₁ = 10); b₁ = (20–)21(–25), b₂ = 8(–10); setae cylindrical blunt annulate, b₁ curved inward and converging; b₁ (1.1–)1.2(–1.3) times as long as interdistance; b₁ (0.7–0.9) of distance b₁–b₂.
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 brevitatis sp. nov.

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

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 brevitatis 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. brevitatis, 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 Tq, 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); $I_1 = I_2 = 20$, $I_3 = 25$. Ratio $a_1/a_2/a_3$ in 1st row 0.9(–1.0), 2nd row (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 $r$. 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: $F_1 = 100$, $b_8 = (8–)10$; $F_2 = (33–)34(–38)$, $s_4 = 4(–)5$; $F_3 = 84(–94)$, $b_8 = (9–)10$. $F_4, 5.5–6.1(–6.3)$ times as long as $t$, $F_5$, and $F_6, 1.7(–1.9)$ 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 colurn 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 posteriometer of 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); $T_4$ with distal endswelling, not fully 0.1 of the length of bothriotrich 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...
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, T3; F, T5; 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.

*Pygidiun* (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*₅–*a*₆ setae cylindrical blunt annulate, *st* clavate, with short pubescence, converging. Distance *a*₂–*a*₃ 1.1(–1.2) times as long as *a*₁; distance *a*₅–*a*₆ 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*₅.

*Cuticle of tarsus glabrous.*

*Anal plate large, narrowest anteriorly, (1.1–)1.3 times as long as distance *T*₁–*T*₂. Relative lengths of setae: 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*₁ curved inward and diverging; *b*₂ (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.

**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* ≈ *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,* 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: \(a_1 = 10, a_2 = (10–12), a_3 = 11\); 2nd row: \(a_1 = 10–14, a_2 = (24–27), a_3 = 11–14\); 3rd row: \(a_1 = (11–13), a_2 = 16–20\); 4th row: \(a_1 = (12–13), a_2 = (22–24–30), a_3 = 22–28, a_4 = (16–22)\); lateral group setae (one paratype) \(l_1 = 30, l_2 = 16, l_3 = 18\). Ratio \(a_1/a_2–a_4\) 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, \((0.9–1.1)\) times as long as shortest interdistance; aperture in posterior part anterior of \(l_1\). Head cuticle glabrous.

Antennae (Figure 14B): segment 4 with 4(5) setae, \(p, p’\) somewhat clavate, annulate, \(r\) cylindrical, blunt, \(u\), if any, rudimentary; their relative lengths: \(p = 10, p’ = (3–4), p” = (2–3), r = (4–5)\). Tergal seta \(p\) \((1.8–2.0)\) times as long as tergal branch \(t\). The latter fusiform, \((1.8–2.0)\) times as long as its greatest diameter and 0.9–1.0 of the length of sternal branch \(s\), that branch \((1.5–1.7)\) 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: \(F_1 = 100, bs_1 = 7–10; F_2 = (28–29), bs_2 = 5–6; F_3 = 70–89, bs_3 = (7–8)\). \(F_1\) \((5.1–6.2)\) times as long as \(t, F_2\) and \(F_3\) \((1.5–1.6)\) 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 \(g\) almost spherical, \((1.3–1.4)\) times as long as wide, stalk narrow, distinct, \(8\) bracts, capsule subspherical; width of \((0.7–0.8)\) of the greatest diameter of \(t\). Antennae glabrous.

Trunk (Figures 14C, 1): 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–IV, 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: \(T_1 = 100, T_2 = (98–99), T_3 = (116–132), T_4 = 138–139, T_5 = 130–146\); all with thin axes, proximal \(1/4\) with short pubescence consisting of simple, oblique hairs, median and distal part of \(T_1–T_5\) with long branched hairs partly arranged in whorls, longest on \(T_3\) and \(T_5\) (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: \(a_1 = 10, a_2 = (7–10), a_3 = (12–13), a_4 = (6–7); a_5 = (2.3–2.7)\) times as long as distance \(a_1–a_2\); distance \(st–st\) \((1.7–2.2)\) times as long as \(st\) and \((1.6–1.7)\) times as long as distance \(a_1–a_2\). Cuticle glabrous.

Sternum: posterior margin between \(b_1\) with shallow indentation. Relative lengths of setae (pygidial \(a_1 = 10: b_1 = 26–38, b_2 = (10–11), a_3 = (5–6); a_4 = (3.8–4.0)\) times as long as \(b_1\) and \((3.8–4.0)\) times as long as distance \(b_1–b_2\).

Anal plate linguiform, \((1.5–1.6)\) 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.


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 \(T_5\), the thick and distinctly...
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, T₁; E, T₂; 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 \( a_5, a_6, b_1, \text{and } b_2 \), 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: \( a_1 = 10, a_2 = 16; 2^\text{nd} \text{ row: } a_1 = 10, a_2 = 28, a_3 = 20; 3^\text{rd} \text{ row: } a_1 = 16, a_2 = 28; 4^\text{th} \text{ row: } a_1 = 20, a_2 = 36, a_3 = a_4 = 32; \) lateral group setae not studied. Ratio \( a_1/a_4-a_1 \) 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 segment \( s \), that branch (1.4–)1.5 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: \( F_1 = 100, b_5 = 9(–10); F_2 = 39(–40), b_5 = (5–)6; F_3\approx 78, b_5 = 8; F_4 6.4 \) times as long as \( t, F_5 \text{ and } F_6 \) 1.8 and 3.6 times as long as \( s \) respectively. Distal calyces of \( F_6 \) widest, flattened, those of \( F_5 \) and 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 collar 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 1, 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 \( a_5 \). 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 \( T_4, T_5, T_6, \text{and } T_5 \) and half of \( T_5 \) with long branched hairs arranged in whorls, longest on \( T_5 \) and \( T_6; T_5 \) 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:** (Figure 15 J): posterior margin between \( st \) almost straight, very small, shallow, median indentation only. Relative lengths of setae: \( a_1 = 10, a_2 = (9–)10, a_3 = (15–)16, st = (10–)12; a_1 \text{ and } a_2 \), short, the former seems to have short pubescence in whorls, the latter and \( a_3 \), annulate, \( a_2 \text{ and } a_3 \), somewhat curved inward, \( st \) strongly clavate, with short pubescence in whorls. Distance \( a_1-a_2 \) 3.0(3.1) times as long as \( a_1 \); distance \( a_2-a_3 \) 5 times as long as distance \( a_2-a_1 \); distance \( st-st \) 3.0(3.6) times as long as \( st \) and (1.4–)1.5 times as long as distance \( a_1-a_2 \). 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, \( b_1 \) curved inward and strongly diverging; \( b_1 (0.9)1 \) 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 T12551).

**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, T₅; 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.
PAUROPODA IN AUSTRALIA

...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. everriculariger and D. malagasus 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. everriculariger, and in the pygidium, the shape of the posterior margin of the tergum, evenly rounded, not with distinct postmedianiorian lobe, the setae $a_1$, $a_2$, not $a_1'$, $a_2'$, 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: $a_1 = 10, a_2 = (8–)10(–11); 2$nd row: $a_1 = 8(–10), a_2 = 18(–20), a_3 = (8–)10(–11); 3$rd row: $a_1 = 10(–11), a_2 = 13(–17); 4$th row: $a_1 = 9(–12), a_2 = 20(–24), a_3 = 17(–20), a_4 = 18(–19); 5$th row group setae (holotype only) $l_1 = 25, l_2 = 18, l_3 = ?$. Ratio $a_1/a_2/a_3$ 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 $t$, 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, b_5 = 7(–8); F_2 = (31–)35(–38), b_6 = (4–)6; F_3 = (75–)84(–89), b_7 = 8(–9); F_4 = (5.5–7.4) times as long as $t, F_5$ and $F_6 = 1.9(–2.0)$ 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 subcylindrical; 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; subilateral ones 2.5(–3.4) times as long as submedian ones; sternite 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 distance.

Bothriotricha (Figure 16E): relative lengths: $T_1 = 100, T_2 = (94–)102(–111), T_3 = (96–)113, T_4 = (96–)106(–112), T_5 = (134–)136(–141); T$ with all thin axes, pubescence hairs simple on $T$ and on proximal parts of the others, longer, branched and in whorls on distal halves of $T$. (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 $a_2$-$a_2$; distance $s$–$s$ 3 times longer than $st$ and 1.4 times as long as distance $a_2$-$a_2$. Cuticle glabrous.

Sternum: Posterior margin between $h_1$ 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 intermediate; $b_1$ 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 posterioriosternal 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

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 T₁–T₄ 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: a₁ = 10, a₂ = 11; 2nd row: a₁ = 11, a₂ = 20, a₃ = 17; 3rd row: a₁ = 14, a₂ = 26; 4th row: a₁ = a₂ = 17, a₃ = 29, a₄ = 34; lateral group setae not studied. Ratio a₁/a₂−a₃ 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: F₁ = 100, bs₁ = 6; F₂ = 31, bs₂ = 4; F₃ = 67, bs₃ = 6. F₁ 7.0 times as long as t, F₁ and F₂ 1.7 and 3.7 times as long as s respectively. Distal calyces of F₂ helmet-shaped, those of F₁ and F₃ 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 a₁. Tergites glabrous.

**Bothriotricha** (Figure 17D): relative lengths of bothriotricha: T₁ = 100, T₂ = 113, T₃ = 94, T₁ = 117, T₄ = 123; all with thin simple axes, proximal parts and whole the Tᵢ with short pubescence of simple, oblique hairs, distal 2/3 of T₁–T₄ with long branched hairs on outer halves arranged in whorls (T₁ 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: a₁ = 10, a₂ = 7, a₃ = 11, st = 5; a-setae somewhat clavate, blunt, annulate, somewhat curved inward, st clavate, striate, curved inward, converging. Distance a₁−a₃, as long as a₁; distance a₁−a₂, four times as long as distance a₁−a₃; distance st−st 2.9 times as long as st and 1.4 times as long as distance a₁−a₁. Cuticle glabrous.

**Sternum**: posterior margin between b₁ with low rounded lobe below anal plate. Relative lengths of setae (pygidial a₁ = 10); b₁ = 27, b₂ = 11; b₁ cylindrical, annulate–striate, b₇ somewhat clavate, annulate, curved inward, diverging; b₁ 1.3 times as long as intermediate; b₇ almost as long as distance b₁−b₁.

**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*; 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.

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_j, with apical end-swelling, no end-swelling, by the shape of the pubescence on the bothriotricha T_p, 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_/a_1 = 1.4 times as long as distance 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_2. 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, b_s = 10; F_2 = 39, b_s = 6; F_3 = 78, b_s = 8. F_4 4.6 times as long as t. F_5 and F_6 2.0 and 2.4 times as long as s respectively. Distal calyces flattened, distal part of flagella axes somewhat widened in F_1 and F_2; not at all in F_3. Globulus g almost spherical, 1.1 times as long as wide, ~1 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_4 = 138; all with thin axes, pubescence hairs simple on T_1 and on proximal parts of T_2, T_3 and T_4, 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_4 (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_2 as long as a_1; distance a_2-a_3 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_2. 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_3 somewhat curved inward; b_4 1.3 times as long as interdistance; b_5 as long as distance b_3-b_4.

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 pubescence, length of appendage 0.5 of the length of plate.

ETYMOLOGY
From the Latin finitus = 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_5; 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.
Decapauporus 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, T₁; F, T₂; 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 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, bothriotrichia and the anal plate but are easily distinguished by the shape of the setae on the tergal side of the head, a, 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, 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, of rows 1–3 rudimentary. Relative lengths of setae (a, of 1st row = 10), 1st row: a, = (2–3), a, = 10; 2nd row: a, = (2–3), a, = 10(–11), a, = 8; 3rd row: a, = (2–3), a, = 12(–13); 4th row: a, = (7–)8(–10), a, = 14(–20), a, = (15–18), a, = (20–)22(–25); lateral group setae (incompletely studied): l, = 16(–17), l, = (13), l, = (15). Ratio a,/a,–a, 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, and l, Head cuticle glabrous.

Antennae (Figure 19B): segment 4 with 4 setae, p large, widest distally, the others cylindrical, densely annulate; their relative lengths: p, = 0, p, = 3(–4), p, = 2(–3), r = 4(6). Tergal seta p (2.0–)2.1(–2.3) times as long as tergal branch r. 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, = 100, bs, = (6–)7(–8); F, = (34–)39, bs, = 5(–6); F, = (76–87), bs, = (7–)8. F, (5.1–)5.3(–5.7) times as long as t, F, and F, (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, 1(–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 1, 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, = 100 (Figure 19E), T, = (87–)94(–102), T, = (119–)136 (Figure 19F), T, = (114–)115(–118), T, = (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, and T,.

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, = 10, a, = (7–)8(–9), a, = (11–)15, st = (7–)8(–10); a-setae cylindrical, striate, blunt, a, and a, somewhat curved inwards, st clavate striate, curved inward and converging. Distance a,–a, (1.2–)1.5(–1.6) times as long as a,; distance a,–a, (1.4–)1.6(–1.8) times as long as distance a,–a,; distance st–st (2.0–)2.2 times as long as st and (1.1–)2.4(–1.4) times as long as distance a,–a,; Cuticle glabrous.

Sternum: posterior margin between b, 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, $b_1$ somewhat curved inward; $b_2$ (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

**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 $T_1$, 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: $a_1 = 13$, $a_2 = 18$, $a_3 = 17$, $a_4 = 19$, $a_5 = a_6 = 20$; lateral group setae not studied.

Ratio $a_5/a_1–a_6$ 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, $\approx 15$ 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), $T_4 = 116$ (Figure 20F); all with simple, thin, axes, pubescence short with simple, oblique hairs on proximal 1/3 of $T_3–T_4$ and proximal 2/3 of $T_5$, with ramose, longer hairs arranged in whorls in other parts; $T_5$ 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 fuscate, 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).

*Tergium:* 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 $a_2–a_4$, as long as $a_1$; distance $a_2–a_4$, twice longer than distance $a_1–a_5$; distance $st–st$ 1.7 times as long as $st$ and 1.2 times as long as distance $a_1–a_5$. 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; $b_0$ 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, T₃; F, T₁; 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.
Decapauropus fustisetosus sp. nov., holotype ad. 9( ): A, head, median and right part, tergal view; B, right antenna, sternal view; C, col um segment, median and left part, sternal view; D, T₃; E, T₅; F, genital papillae, left side, anterior view; G, seta on coxa of leg 9; H, seta on trochanter of leg 9; J, 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.
PAUROPODA IN AUSTRALIA

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 \(T_r\), 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 \(D.\ camurus\) (pygidal 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, anululate. Relative lengths of setae, 1\(^{st}\) row: \(a_1 = 1, a_2 = 6\); 2\(^{nd}\) row: \(a_1 = 1, a_2 = 12, a_3 = 5\); 3\(^{rd}\) row: \(a_2 = 6, a_3 = 9\); 4\(^{th}\) row: \(a_1 = 8, a_2 = 11, a_3 = 10, a_4 = 9\); lateral group setae not studied. Ratio \(a_1/a_4\) in 1\(^{st}\) row 0.2, 2\(^{nd}\) row 0.1, 3\(^{rd}\) row 1.1, 4\(^{th}\) 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, anululate, \(r\) 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 4\(^{th}\) segment but more clavate, 1.3 times as long as the length of \(s\). Relative lengths of flagella (basal segments included) and basal segments: \(F_1 = 100, bs = 6; F_2 = 37, bs = 4; F_3 = 80, bs = 8; F_4 = 5.1\) times as long as \(t\), \(F_5\) and \(F_6 = 1.7\) 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.

Setae on tergites as setae on head; 4\(^{th}\)-4 setae on tergite I, 6\(^{th}\)-4 on II–IV, 6\(^{th}\)-4 on V, 4\(^{th}\)-2 on VI. Submedian posterior setae on VI (Figure 21J) 0.6 of interdistance and about as long as pygidial setae \(a_{p}\). 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 \(T_4-T_5\) and on main part of \(T_5\) (Figure 21E), short erect on the former, longer and mainly oblique on \(T_4\); distal parts of \(T_4-T_5\) 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, anulululate, 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 anulululate, 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: \(a_1 = 10, a_2 = 8, a_3 = 13\). The \(a\)-setae cylindrical, \(a_1\) straight anululate, \(a_2\) and \(a_3\) faintly striate, curved inward, the latter also diverging, \(st\) clavate, striate, converging, curved inward. Distance \(a_1-a_2\) 0.9 of the length of \(a_1\), distance \(a_1-a_3\) 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 \(a_1-a_3\). Cuticle glabrous.

Sternum: posterior margin between \(b\) somewhat indented. Relative lengths of setae (pygidal \(a_1 = 10\)): \(b_1 = 27, b_2 = 9\). Setae cylindrical blunt, \(b_1\) anululate–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,
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, T₃; F, T₅; 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, posterirolateral 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 bothriotrecha T).

*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* Scheller from Tasmania (Scheller 2009b). Good distinguishing differences are in the seta on trochanter of leg 9, simple in *D. gamba*, furcate in *D. unglulatus*, 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, 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. unglulatus*.

**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: 25 = 10, 26 = 11, 27 = 14, 28 = 20, 29 = 10; 2nd row: 31 = 11, 32 = 16; 4th row: 41 = 13, 42 = 14, 43 = 20; lateral group setae: 44 = 40, 45 = 20, 46 = 20. Ratio $a_1/a_2$, $a_3/a_4$ 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 interdistances; 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 $p''=4$, 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: $F_1 = 100$, $bs_1 = 10$; $F_2 = 37(–39)$, $bs_2 = 4$; $F_3 = 39(–93)$, $bs_3 = 10$. $F_4 = 5.1$ times as long as $t$, $F_5$ and $F_6 = 1.5$ and 3.5(–3.6) times as long as $s$ respectively. Distal calyces flattened. Distal part of flagella axes thickened, those of $F_1$ 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 1, 6+6 on II–IV, 4+2 on VI. Submedian posterior setae on VI cylindrical striate (Figure 22D), 0.9 of interdistance and about as long as pygidial setae $a_5$. Tergites glabrous.

**Bothriotrecha** (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 $s$ 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 $a_1–a_5$, 1.5 times as long as distance $a_1–a_1$; distance $st–st$ twice longer than $st$ and 1.4 times as long as distance $a_1–a_5$. 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).

**Decapauporus 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**

*Decapauporus 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(–28); lateral group setae: $l_1 = (22–31), l_2$ and $l_2$ not studied. Ratio $a_1/a_2 = a_3$ 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: $F_1 = 100, b_5 = 7(–)8, F_2 = (69–)81, b_6 = (8–)10; F_3 = (75–)76(–82), b_7 = (7–)10. F_4 = (5.0–)5.4$ times as long as $t$, $F_5$ and $F_6 = (2.1–)2.5(–2.6)$ 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 $g_1 1.2(–1.5)$ times as long as wide, (10–)11(–12) bracts, capsule subospherical; 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 $a_1$. Termes glabrous.

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

Decapauropus haplotes sp. nov., holotype, ad. 9(1): 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, T₁; 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.
$T_1 = (101–109), T_2 = (110–114)(–125), T_3 = 119(–135), T_4 = (170–172)(–187)$; axes simple, in $T_1$ (Figure 23E) thickened in proximal $\frac{1}{4}$; pubescence on distal half of $T_1$ and $T_2$; distal $\frac{1}{4}$ of $T_1$ and $T_2$ with branched hairs in whorls, for the rest and on $T_1$ 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 distance $T_1$ and (2.1–)2.9 times as long as striate distal seta. Cuticle proximal seta annulate, (0.4–)0.5 of the length of tarsus, clavate. Tarsus of leg 9 (Figure 23H, I) broadest anteriorly, (1.8–)2.5 times as long as broad, lateral group setae not studied. Ratio $a_1/a_2 = (7–)8(–9); a_1$ somewhat curved outward, $a_2$ somewhat curved inward. $s_t$ 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 $a_1–a_2$; distance $s_t–s_t$ (1.8–)2.1(–2.3) times as long as $s_t$ and (1.7–)2.1(–2.3) times as long as distance $a_1–a_1$. Cuticle glabrous.

Sternum: posterior margin between $b_t$ 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, $b_t$ striate distally, $b_3$ with short pubescence, curved inward; $b_3$ 1.3(–1.6) times as long as interdistance; $b_3$ 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 haploos = singleness (referring to the posterior unpaired appendage of the anal plate).

Decapauropus heis Scheller, 2009


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 $T_1$, 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, small, not two seta (Remy 1952a, p. 151: ”2 poils côte à côté prè de l’extrémité distal” (that probably means a furcate seta, later described in many species), and the shape of the $s_t$, 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 $\approx 1$.1 times as long as that length. The new species may also be connected with D. peregrinus 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: $a_1 = 10$; 2nd row: $a_1 = (12–)15, a_2 = (16–)17(–18), a_3 = (11–)14$; 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 $a_1/a_2–a_1$ 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, \( T_1; F, T_2; G \), 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(1). A: head, median and right part, tergal view; B, left antenna, tergal view; C, collum segment, median and left part, sternal view; D, T₂; E, T₃; 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 (0.6–)0.7 of interdistance and as long as the length of plate.

**ETYMOLOGY**

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

**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 Tₚ, Tₚ and Tₚ 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 a₁, not distinctly clavate and much shorter than a₁.

**DESCRIPTION**

**Adult female holotype (and paratypes)**

**Length:** (0.46–)0.72(–0.77) mm.

**Head** (Figure 25A): setae a₁ 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: a₁ = 1, a₂ = 7; 2nd row: a₁ = 1, a₂ = 13, a₃ = 5, 3rd row: a₁ = 1, a₂ = 10; 4th row: a₁ = 2, a₂ = 12, a₃ = 7, a₄ = 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, un 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: F₁ = 100, bs₁ = 7(–8); F₂ = (34–)39, bs₂ = 5; F₃ = (81–)85(–86), bs₃ = (6–)7. F₄ 5.2(–5.3) times as long as t, F₅ and F₆ (1.5–)1.9 and (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 subglabrous with thick caps and distinct collar; process glabrous, appendages faintly pubescent.

Setae on tergites as $a_1$ and $a_2$, of 4th row on head, somewhat lengthening posteriorly; 4+4 setae on tergite 1, 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 posterior setae on tergite VI (Figure 25 I) thin, 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: $T_1 = 100$, $T_2 = 103(–109)$, $T_3 = 110(–115)$, $T_4 = (118–)123$; axes simple, strongest in $T_1$ (Figure 25D), pubescence on proximal parts of simple hairs, otherwise long, branched hairs, longest on $T_3$ (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(1.3–3.3) 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, $a_3$ and $st$ converging, $a_1$ diverging, $st$ somewhat clavate. Distance $a_1$–$a_1$ as long as $a_1$; distance $a_1$–$a_1$ about twice longer than distance $a_3$–$a_3$; 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 $a_1 = 10$; $b_1 = 3(1–36)$, $b_2 = 12(–14)$; setae cylindrical, $b_1$ annulate–striate, $b_2$ striate, curved inward; $b_3$ 1.0(–1.2) times as long as interdistance; $b_3$ 0.6(–)0.8 of distance $b_3$–$b_2$.

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., 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, $T_3^t$; F, $T_5^t$; 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 1, 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 ar. 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 \( T_5 \) (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 26I) strongly tapering, 2.6(–3.0) times as long as its greatest diameter. Setae somewhat clavate, striate, curved inward, converging. Distance \( a_1–a_1 \) (0.7–)0.9 of the length of \( a_2; \) distance \( a_1–a_2 \) twice longer than distance \( a_1–a_3; \) 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 \( a_2 \)-setae of the rows 1-3 on the tergal side of the head).
Globulus $g$ as long as wide, $\approx 14$ 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 $a_r$. Tergites glabrous.

**FIGURE 27** Decapauropus inordinatus sp. nov., holotype, ad. 9(1): 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, $T_2$; 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.
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, T₃; F, T₅; 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.
**PAUROPODA IN AUSTRALIA**

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 \( T_1 \) (Figure 27F) and \( T_5 \); pubescence of simple hairs on proximal halves and on \( T_1 \) and \( T_5 \) hairs branched on \( T_1 \) (Figure 27E) and \( T_5 \), and to some part on \( T_2 \).

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. Distal calyces helmet-shaped; distal part of anal appendages small, caps subhemispherical, process and setae cylindrical, blunt, annulate, \( 4+4 \) 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: \( a_1 = 10, a_2 = 9, a_3 = (12–)13, a_4 = 6, a_5 = 6, a_6 = 7, a_7 = 10, a_8 = 10, a_9 = 10 \); axes thin, a little thickened in \( T_1 \) (Figure 27F) and \( T_5 \); pubescence of simple hairs on proximal halves and on \( T_1 \) and \( T_5 \) hairs branched on \( T_1 \) (Figure 27E) and \( T_5 \), and to some part on \( T_2 \).

Sternum: posterior margin between \( b \), almost straight. Relative lengths of setae (pygidial \( a_1 = 10 \); \( b_1 = (19–)24, b_2 = 12, b_3 = 12; \) setae striate–annulate; \( b \) shorter than their interdistance; \( b_2 \) 0.9 of distance \( b_1 \). Anal plate (Figure 27 I) glabrous linguiform, (1.1–)1.2 times as long as broad, lateral margins almost straight, posterior margin with considerable 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 \( T_1 \)).

**Decapauropus kartotrichos** sp. nov.

urn:lsid:zoobank.org:act:9427F0DA-A3CA-4AF6-AF78-4EBD4B4E9E0

**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: 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: \( a_1 = 1, a_2 = 7, a_3 = (6–)8; 2 \)nd row: \( a_1 = 1, a_2 = 13, a_3 = (6–)8; 3 \)rd row: \( a_1 = 1, a_2 = 10; 4 \)th row: \( a_1 = 5, a_2 = 5, a_3 = 10 \); lateral group setae not studied. Ratio \( a_1/a_2-a_5 \) 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: \( F_1 = 100, bs_1 = 7; F_2 = 36(–)37, bs_2 = 4; F_3 = (80–)83, bs_3 = 7; F_4 = 3.4 \) times as long as \( t \), \( F_3 \) and \( F_4 \) 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, 100 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 V (Figure 28D) 0.4(–0.5) of interdistance and 0.8(–0.9) of the length of pygidial setae of tergal side of the head). Relative lengths of setae: 1a = 10, 2a = (9–)10, a1 = 13, st = 7; a-setae cylindrical, blunt, annulate–strate, 1a curved outward, a2, a short and st curved inward, st also clavate striate, converging. Distance a1–a1 0.9(–1.0) of the length of a1; distance a1–a2 (2.0–)2.5 times as long as distance a1–a1; distance st–st (2.3–)2.4 times as long as st and (1.5–)1.7 times as long as distance a1–a1. Cuticle of tarsus glabrous.

**Sternum**: posterior margin between b1 indented shallowly. Relative lengths of setae (pygidial a1 = 10): b1 = 33(–37), b2 = 14(–15); setae cylindrical, blunt, annulate–strate; b1, (1.2–)1.3 times as long as interdistance; b2 as long as b1–b2.

**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, postierolateral corners indistinctly rounded, two short elevate 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 kar - shortened, and thrich, trichos = hair (referring to the short setae a1 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, Yarragal 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 May 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 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 T1–T6 and legs 1–8 with furcate setae on 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: a1 = 10, a2 = 20; 2nd row: a1 = 16, a2 = 31, a3 = 16; 3rd row: a1 = 16, a2 = 36; 4th row: a1 = 28, a2 = 44, a3 = 32, a4 = 40; lateral group setae: l1 = 43, l2 and l3 = ?. Ratio a1/a1–a1 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 central 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: F1 = 100, bs = (9–)10(–11); F2 = (33–)39, bs = (5–)7; F3 = 74(–85), bs = 9(–)10; F4 = (5.4–)5.5(–6.0) times as long as t, F5 and F6 = 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
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 a₁. Tergites glabrous.

Bothriotricha (Figures 29E, F): relative lengths: T₁ = 100, T₂ = (96–)102(–110), T₃ = (104–)107(–108), T₄ = (108–)133, T₅ = (143–)156; T₅₋₄ polyramose (Figure 29E), even repeatedly branched, branches with distinct erect pubescence; T₅ with simple axes with distinct pubescence of 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, tapering, (2.5–)2.6(–2.7) times as long as its greatest diameter. Cuticle glabrous.

Trunk: Posterior margin between clavate, curved inward and converging. Distance a₁–a₁ (0.7–)0.8(–0.9) of the length of a₁; distance a₁–a₄, (1.5–)2.2 times as long as distance a₁–a₁; distance st–st (1.7–)2.1 times as long as st and (1.5–)1.9 times as long as distance a₁–a₁. Cuticle glabrous.

Sternum: Posterior margin between b₁ indented and with low rounded lobe below anal plate. Relative lengths of setae (pygidial a₁ = 10): b₁ = 24(–33), b₂ = (10–)11(–13); setae cylindrical blunt striate-annulate; b₁ 1.1(–1.3) times as long as interdistance; b₂ (0.7–)0.9 of the distance b₁–b₂.

Anal plate (Figures 29L, M) glabrous linguiform, narrowest anteriorly, (1.0–)1.1 times as long as broad, lateral and posterior margins almost straight, posteriomedial 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 T₅₋₄).

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( ), same data except 27 October 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 ), 1 juv., 6, 2 juv. 3, same data except 25 July 1980 (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

Decapauporus multivirgatus sp. nov., holotype, ad. 9(1): 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, T1; F, T3; G, T5; 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 \( p \approx r \), 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, 1\(^{st} \) row: \( a_1 = 10, a_2 = 12(–16); 2^{nd} \) row: \( a_1 = 10(–12), a_2 = (15)–16(–21), a_3 = 8(–12); 3^{rd} \) row: \( a_1 = (8)–9(–12), a_2 = (15)–16(–18); 4^{th} \) 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 \( a_1/a_2–a_4 \) in 1\(^{st} \) row 0.7(–0.8), 2\(^{nd} \) row (0.3–)0.4(–0.5), 3\(^{rd} \) row 0.4(–0.6), 4\(^{th} \) 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 4\(^{th} \) segment, (1.5–)1.7 times as long as \( s \). Relative lengths of flagella (basal segments included) and basal segments: \( F_1 = 100, b_{s1} = (8)–9; F_2 = (29)–31(–34), b_{s2} = 4(–5); F_3 = (82)–84(–85), b_{s3} = (7)–8; F_4 = (5.8)–6.4(–7.1) \) 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 \( F_3 \), weakly widened in \( F_2 \) and \( F_4 \). 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** (Figure 30 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 pygidal setae \( a_5 \). Tergites glabrous.

**Bothriotricha** (Figures 30E–G): relative lengths: \( T_1 = 100, T_2 = (102)–112(–114), T_3 = (91)–118, T_4 = (94)–114(–119), T_5 = 135(–155); \) axes thin, \( T_1–T_5 \) with branches, \( 9(–11) \) in \( T_1, T_2 \) and \( T_5 \), 10(–16) in \( T_3, T_4 \), most branches long, bow-shaped, a few ones short, straight (Figures 30 E, F), \( T_1 \) (Figure 30G) with simple axes; pubescence hairs on all bothriotrichia 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** (Figure 30 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–anulate, \( a_1 \) 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**

*Figures 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 *b₁* 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 *T₃* 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 *T₃* (Figure 31C) and *T₅*.

*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, *T₃*; D, tarsus of leg 8; E, genital papillae, anterior view (setae not drawn). Scale a: Figures A, B, D; b: Figures C, E.
Decapauporus 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$_{r}$-T$_{s}$ 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, 1$^{\text{st}}$ row: $a_1 = a_2 = 10$; 2$^{\text{nd}}$ row: $a_1 = 13$, $a_2 = 21$, $a_3 = 13$; 3$^{\text{rd}}$ row: $a_1 = 12$, $a_2 = 18$; 4$^{\text{th}}$ row: $a_1 = 16$, $a_2 = 24$, $a_3 = a_4 = 18$; lateral group setae: $l_1 = 31$, $l_2 = 22$, $l_3 = ?$. Ratio $a_1/a_2/a_3/a_4$ in 1$^{\text{st}}$ and 2$^{\text{nd}}$ rows 1.1, 3$^{\text{rd}}$ row 0.9, 4$^{\text{th}}$ 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: $p_1 = 10$, $p_2 = p_3 = 3$, $r = 4$. 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 4$^{\text{th}}$ segment but somewhat thicker, 1.3 times as long as $s$. Relative lengths of flagella (basal segments included) and basal segments: $F_1 = 100$, $b_1 = 9$; $F_2 = 38$, $b_2 = 7$; $F_3 = 78$, $b_3 = 9$. $F_4$ 6.4 times as long as $t$, $F_5$ and $F_6$ 1.8 and 3.7 times as long as $s$ respectively. Distal calyces small, distal part of flagella axes fusiformly widened below calyces, $F_1$ thinner than $F_2$. 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 seta $a_r$. Tergites glabrous.

Bothriotricha (Figures 32E, F): relative lengths: $T_r = 100$, $T_s = T_q = 85$, $T_r = 90$, $T_s = 116$; axes simple, thin, thickest in $T_r$, pubescence of short, simple hairs on proximal ¼ of $T_r$ and whole the $T_s$, erect on the former, oblique on $T_q$. Distal ¼ of $T_r$–$T_s$ with long, ramose hairs, in sparse whorls on $T_r$ (Figure 32F), $T_q$ and $T_s$, in dense whorls and shorter on $T_r$ (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 32I) 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, $a_1$ thin converging, $st$ cylindrical, almost glabrous, curved inward, converging. Distance $a_1$–$a_2$ 1.2 times as long as $a_1$; distance $a_2$–$a_3$ 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 $a_2$–$a_1$.

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; $b_1, b_2$ 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).

Decapauporus proximus Remy, 1948


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.
Decapaurops 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 ; F, T ; 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_5; 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. unguulatus described by Scheller from Tasmania (Scheller 2009b). The anal plates are very alike except the appendages, cylindrical in D. ramulentus, clavate in D. unguulatus. 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 a₁ in the first row of the tergum and head, not so in D. javanus, and in the latter species the T₁ 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, anulate, blunt. Relative lengths of setae, 1st row: a₁ = 10, a₂ = 11(–14); 2nd row: a₁ = 10, a₂ = 20(–26), a₃ = 14(–18); 3rd row: a₁ = 9(–13), a₂ = 14(–16); 4th row: a₁ = 9(–11), a₂ = 15(–16)(–19), a₃ = 16(–20), a₄ = 19(–21); lateral group setae not studied. Ratio a₁/a₂–a₃ 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 anulate; 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, anulate, 1.3(–1.8) times as long as s. Relative lengths of flagella (basal segments included) and basal segments: F₁ = 100, b₁ = 8; F₂ = (31–)35(–40), b₂ = (5–)6; F₁ = (78–)80(–86), b₁ = (6–)7. F₁ (5.7–)6.0(–6.9) times as long as t, F₂ and F₁ 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 l. Antennae glabrous.

Trunk (Figure 33C, D): setae of collum segment (Figure 33C) simple, cylindrical, blunt, anulate; 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 a₁. Tergites glabrous.

Bothriotricha (Figure33E, F): relative lengths: T₁ = 100, T₂ = 97 and 100(–109), T₃ = (103–)108(–116) (Figure 33E), T₄ = 103(–120), T₅ = (124–)125(–141); axes simple, proximal 1/3 of T₋T₀ and whole the Tₐ (Figure 33F) with simple, oblique–erect pubescence hairs, distal 2/3 of T₋ with long, straight, oblique hairs, T₋T₀ with long, branched hairs in whorls.

Legs (Figures 33G–I): setae coxa and trochanter of 9th pair (Figure 33G, H) furcate, cylindrical, anulate, 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 tarsa. Cuticle of tarsus faintly granular.

Pygidium (Figure 33J).

Tergum: posterior margin behind a₁ straight but with small lobes behind a₂. Relative lengths of setae: a₁ = 10, a₂ = (8–)9(–10), a₃ = 10(–13), st = 7(–9); setae striate, a-setae cylindrical blunt, st clavate, a₁ almost straight, somewhat diverging, a₂ a₃ and st curved inward, the latter also converging. Distance a₁–a₂, 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 \(a_1-\_a_3\); distance \(st-\_st\) (1.8–)2.0 times as long as \(st\) and (1.3–)1.6 times as long as distance \(a_1-\_a_4\). 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 \(b_1\)_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

**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), 2\text{nd row: } a_3=8(–12), a_4=11(–14), a_5=10(–11); 3\text{rd row: } a_6=11(–15), a_7=(14–)16(–21); 4\text{th row: } a_8=11(–15), a_9=(13–)15(–20), a_{10}=(14–)15(–20), a_{11}=15(–20); lateral group setae not studied. Ratio \(a_1/ a_2\) 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–strike, \(p''\) 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_4=(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 \(g\) subhemispherical, 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** (Figures 34E, 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(1): 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, $T_5$; F, $T_6$; 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**

*Decapaurops 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 \( T_1 \) (Figure 34F) with long, branched hairs in whorls; \( T_2 \) (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: \( a_1 = 10, a_2 = (6–8)(–9), a_3 = (12–13)(–19), s_1 = 8; \) setae cylindrical, blunt, striate–annulate, \( a_4 \) straight, diverging, \( a_2, a_4 \) and \( s_t \) curved inward, the latter also converging. Distance \( a_4−a_1 (1.2–)1.4(–2.3) \) times as long as \( a_1; \) distance \( a_4−a_2 (2.1–)2.3(–2.6) \) times as long as distance \( a_4−a_2; \) distance \( s_t−s_t (2.3–)3.0 \) times as long as \( s_t \) and \( (1.1–)1.2(–1.4) \) times as long as distance \( a_4−a_2. \) Cuticle glabrous.

**Sternum**: posterior margin between \( b_3 \) 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; \( b_2 1.2(–1.4) \) times as long as interdistance; \( b_2 0.8(–1.0) \) of the length of distance \( b_2−b_2. \)

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. ramulusculus (referring to the branched pubescence on bothriotricha \( T_5 \)).

**Decapaupos rhopalotes** sp. nov.


Figures 35A–M

**MATERIAL EXAMINED**

**Holotype**

**Australia**: Western Australia: ad. 9( ), c. 22 km SE. of Dwellingup, Yarragal 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 delimited 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: \( a_1 = 14(–19), a_2 = 19(–21), a_3 = 21(–28), a_4 = 7(10–12); \) lateral group setae not studied. Ratio \( a_1/a_1−a_2, a_2/a_2−a_3, a_3/a_3−a_4 \) 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^′ = ...
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, $T_5$; 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.
PAUROPODA IN AUSTRALIA

(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 = 100, bs = 7(–8); F2 = (30–)33(–38), bs = 5; F3 = ?(80–89), bs = 7(–8); F4 = (6.1–7.0)(–7.1) times as long as t, F3 and F1 (1.7–)1.9(–2.3) and ?(4–)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 (Figures 35C, D): setae of colum 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 \( t \). 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 \( T_3 \) 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–brate, 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: \( a_1 = 10, a_2 = (9–10)(–14), a_3 = (17–)24(–27), a_4 = (11–)14(–21) \); a-setae almost straight, blunt, striate–annulate, \( a_1 \) somewhat diverging, \( a_2 \) 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 \( a_1–a_1 \); 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 Decapauropus 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 Decapauropus sphen, thin cylindrical and at least as long as the distal seta in D. sagitta, 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 \( a_1/a_2/a_3/a_4 \) 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, T3, 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 setae \( p = 2.0 \) 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 sternum 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: \( F_1 = 100, b_1 = 8; F_2 = 34, b_2 = 5; F_3 = 86, b_3 = 7. F_4 \) 5.1 times as long as \( t \). Setal lengths: \( F_1 = 5.1, F_2 = 1.7 \) and 4.2 times as long as \( s \) respectively. Distal calyces hemispherical; distal part of flagella axes widened below calyces, on \( F_1 \) and \( F_2 \) conically, on \( F_3 \) similar to an inverted cone. Globulus \( g \) almost spherical, 1.1 times as long as wide, \( \approx 8 \) bracts, capsule subspherical; width of \( g \) 0.9 of the greatest diameter of \( t \). Antennae glabrous.

Trunk (Figure 36C, D): setae on 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; 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 \( a \). Tergites glabrous.

Bothriotricha (Figures 36E, F): relative lengths: \( T_1 = 100, T_1 = 103, T_2 = 106, T_3 = 48, T_4 = 97 \); axes simple, on \( T_1 \) with nodes of different size in distal half and with end-swellling; pubescence proximally and on whole the \( T_4 \) (Figure 36E) of simple straight hairs, on main part of \( T_4 \) 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 papillae: 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 \( s \) straight. Relative lengths of setae: \( a_1 = 10, a_2 = 9 \) and 10, \( a_3 = 12, s = 9 \); a-setae cylindrical, blunt, stirate–annulate, \( a_3 \) and \( a_4 \) somewhat curved inward and diverging, \( s \) strongly elevate, cut squarely distally, striate. Distance \( a_2 \)–\( a_3 \) 0.8 of the length of \( a_3 \); distance \( a_4\)–\( a_3 \) 2.6 times as long as distance \( a_2\)–\( a_3 \) distance \( s\)–\( s\) 1.6 times as long as \( s \) and 1.7 times as long as distance \( a_3\)–\( a_3 \). 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, \( b_1 \) stirate–annulate, \( b_2 \) striate, curved inward; \( b_3 \) 1.3 times as long as interdistance; \( b_4 \) as long as distance \( b_1\)–\( b_2 \).

Anal plate (Figures 36J, 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


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-BC4-9634619BECFE

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 T125558).

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, \( a_3 \) and \( a_4 \) much shorter than half of the \( a_1 \) in \( D. \) serpentis,
almost as long as the \( a_1 \) 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: \( a_1 = (14–)17(–19), a_2 = (18–)20(–24) \), 4th row: \( a_1 = 15(–20), a_2 = (18–26) \), \( a_3 = (15–)17(–22), a_4 = (15–)17(–20) \); lateral group setae not studied. Ratio \( a_1:a_2:a_3 \) 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: \( p = 10, p' = (4–)6(–7), p'' = (4–5), r = (3–3.4) \). 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: \( F_1 = 100, b_1 = (7–9), F_2 = (35–)37, b_2 = (5–7) \), \( F_3 = (85–93), b_3 = (8–9)(–10), F_4 = 6.2(–6.5) \) times as long as \( t, F_5 \), and \( F_6 = 1.5(–1.9) \) and 3.5(–4.5) times as long as \( s \) respectively. Distal calyxes 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; \( T_7 \) (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, setae 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* (Figures 36F, I) posterior margin behind \( a_1 \) straight. Relative lengths of setae: \( a_1 = 10, a_2 = (10–)13(–14), a_3 = (24–)36(–38), st = (18–)21 \); \( a_1 \)-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 \( a_1–a_2 \) (2.9–3.6) times as long as \( a_1 \); distance \( a_1–a_3 \) (2.7–3.0(–3.3) times as long as distance \( a_1–a_2 \); distance \( st–st \) (1.7–)1.8(–2.0) times as long as \( st \) and 1.0(–1.3) times as long as distance \( a_1–a_2 \). 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-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 *a₁* are also thicker and longer than the *a₃*, not of the same thickness and shorter than the *a₃*.

**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, T₅; 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, annullate. Relative lengths of setae, 1st row: $a_1 = 10$, $a_2 = 11$; 2nd row: $a_3 = 9$, $a_4 = 18$, $a_5 = 13$; 3rd row: $a_6 = 7$, $a_7 = 12$; 4th row: $a_8 = 12$, $a_9 = 24$, $a_{10} = 11$, $a_{11} = 12$; lateral group setae not studied. Ratio $a_i/a_j$ in 1st row 0.9, 2nd row 0.5, 3rd row 2.0, 4th row 0.8. 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 appendages glabrous. Appendages subcylindrical with thick caps; process and setae; sternite process small, pointed anteriorly; 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 annullate 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 $i$, $F_2$ 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 annullate; 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 $a_i$. Tergites glabrous.

Bothriotricha: relative lengths: $T_1 = 100$, $T_2 = 115$, $T_3 = T_4 = 48$, $T_5 = 199$ 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 annullate. 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 annullate, 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, annullate–striate, $a_i$ 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 $a_i-a_i$ 0.9 of the length of $a_i$; distance $a_i-a_i$ twice longer than distance $a_i-a_i$; distance $st-st$ 2.2 times as long as $st$ and 1.8 times as long as distance $a_i-a_i$. Cuticle glabrous.

Sternum: posterior margin between $b_i$ with broad shallow indentation. Relative lengths of setae (pygidial $a_i = 10$): $b_1 = 31$, $b_2 = 12$; 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 25 March 1981; 4 ad. 9(, ).
PAUROPODA IN AUSTRALIA

1957b). Australia, Gnangara, about 30 km north of Perth (Remy

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.

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 \( a \) in all rows rudimentary with a few short pubescence hairs only; other setae of medium length, annulate. Relative lengths of setae, 1\(^{st}\) row: \( a_1 = 1, a_2 = (5–)7; 2^{nd} \) row: \( a_1 = 1, a_2 = (10–)11, a_3 = (5–)7; 3^{rd} \) row: \( a_1 = 1, a_2 = (5–)8; 4^{th} \) row: \( a_1 = a_2 \) (probably broken) = 1, \( a_3 = (8–10), a_4 = (5–)10; \) lateral group setae not studied. Ratio \( a_1/a_2–a_4 \) in 1\(^{st}\) row \( 0.2, 2^{nd} \) and 3\(^{rd} \) rows 0.1(–0.2), 4\(^{th} \) 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 tegral 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 4\(^{th} \) segment but thinner, (1.2–)1.4(–1.6) times as long as \( s \). Relative lengths of flagella (basal segments included) and basal segments: \( F_1 = 100, b_1 = 5(–7); F_2 = 34(–36), b_2 = (4–)5; F_3 = 86(–90), b_3 = 7, F_4 = 5.0(–5.4) \) times as long as \( t, F_2 \) and \( F_3 = 1.8\approx2.1 \) 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 (Figure 39C, 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

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 6\(^{th} \) 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 by a pubescence increasing in length posteriorly; the

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.

Figure 39A–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. 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 $T_3$ (Figure 39D), pubescence on $T_5$ (Figure 39E) and proximal part of other bothriotricha of simple oblique hairs, very distinct on $T_3$, main parts of

---

**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.
T1–T4 with branched hairs arranged in whorls, longest on T4.

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: a1 = 10, a2 = (8–)9–10, a3 = 11(–13), st = (7–)9; a-setae almost straight, densely annulate, st strongly enlarged distally, there cut squarely, distinctly striate. Distance a1–a1 (as long as –)1.3 times as long as a1; distance a1–a2 (2.5–)3.0 times as long as distance a1–a1; distance st–st (2.0–)2.2 times as long as st and 1.4(–1.7) times as long as distance a1–a1. Cuticle glabrous.

Sternum: posterior margin between b1 with broad, shallow indentation. Relative lengths of setae (pygidial a1 = 10): b1 = (37–)43, b2 = 11(–15); setae cylindrical, annulate, b1 curved inward; b1.12(–1.3) times as long as interdistance; b2 0.7(–1.0) of distance b1–b2.

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: a1 = 10, a2 = 11; 2nd row: a1 = (14–)15, a2 = (25–)27, a3 = (15–)20; 3rd row: a1 = (10–)11, a2 = 16; 4th row: a1 = (11–)13, a2 = 26, a3 = (23–)26, a4 = 16(–17); lateral group setae (holotype only): l1 = 26. Ratio a1/a2/a3 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: F1 = 100, bs1 = 8(–)9; F2 = (70–)84, bs2 = 8; F3 = (86–)87, bs3 = (8–)9. F1 2.8(–)3.6 times as long as t, F2 and F3 (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 small 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.

Seta 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, 6+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, T3; 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.
Decapauropus tenuis Remy, 1948


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


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( ), Yarragil Brook site, 23 June 1981; 1 ad. 9( ), same data except 15 September 1981.
Decapaurops 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, T₃; 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.
PAUROPODA IN AUSTRALIA

**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, striae in *D. terrulentus*, with large annules in *D. compactus*, the shape of the anal globulus *g*, subspherical, not pyriform, the bothriotricha *T*, with distal swelling, no swelling, and by the setae on the trochanter of the 9th pair of legs, simple, not fuscate.

**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*₂–*a*₃ 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 pistol 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 *F₂* thinnest, distal calyces somewhat flattened, distal part of flagella axes below calyces widened in *F₂* 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; sternal 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*₂ 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 posterolateral 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 \(T_s\), 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 \(a_1/a_2/a_3\) in 1st and 2nd 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; anterodorsal 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, b_1 = 9(–10); F_2 = (36–37), b_2 = 4(–6); F_3 = (88–91), b_3 = 8. F_4 (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, 1): setae of collum segment (Figure 42C) simple, cylindrical, blunt, annulate, subtergital 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(+) setae on tergite I, 6(+) on II–IV, 6(+) on V, 4(+) on VI. Submedian posterior setae on VI (Figure 42 I) 0.1 of interdistance and almost 0.2 of the length of pygidial setae \(a_t\). 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 \(T_2\), \(T_3\) and \(T_4\) very thin, those of \(T_5\) thicker, with (2–3) small swellings in the middle. Pubescence on proximal 1/3 of \(T_2\)–\(T_5\) 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 \(T_2\)–\(T_5\), there ramose, in whorls, strongest on \(T_1\) (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: \(a_1 = a_2 = 10, a_3 = (6–7), st = 4; a\)-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 \(a_1–a_3\) 3(–5) times as long as distance \(a_2–a_2\); 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 = 2(–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.
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; 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


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-B6C0-69F9C1D4337

**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* in 4th row) known from Madagascar, the Seychelles, Réunion, Sri Lanka and the U.S.A. and *D. mirimus* Scheller (no *a* in 3rd row) from Brazil. The latter is least alike the Australian species (quite different bothriotricha *T* 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*-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*,-setae of rows 1–3 rudimentary, glabrous, other setae of medium length, annulate. Relative lengths of setae (holotype only), 1st row: *a* = 1, *a* = 7, 2nd row: *a* = 1, *a* = 12–13, *a* = 7–8; 3rd row: *a* = 2, *a* = 8; 4th row: *a* = 5, *a* = 10–13, *a* = 11, *a* = ?, lateral group setae not studied. Ratio *a*/*a*−*a* 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* thicker, *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* ′ = 100, *bs* = 6; *F* ′ = 28, *bs* = 8; *F* ′ = 95, *bs* = 8. *F* ′, 4.5 times as long as *t*, *F* ″ and *F* ′, 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, 3=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; their relative lengths: *T* = 100, *T* = 102, *T* = 1(09–)113, *T* = 124, *T* = 155(–159); *m* normal, *s* and *m* very thin, those of *T* (Figure 43E) thickest, in distal half with nodules. Pubescence on proximal 1/3 of *T*–*T* and whole the *T* of short simple oblique hairs, strongest on *T* on the middle and outer parts of *T*–*T* pubescence increasing in length, hairs ramose, in whors, densest on *T*.

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(1): 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, T₁; F, T₃; 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 \(a_2-a_2\) 1.5 times as long as distance \(a_3-a_3\); 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(1): 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, \(T_2\); 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 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 $a_1/a_2–a_3$ 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: $p = 10$, $r = 3$, $p'' = 2(–3)$, $r = 6(–7)$. 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: $F_1 = 100$, $b_{s_1} = 8(–9)$; $F_2 = (29–33)$, $b_{s_2} = (4–6)$; $F_3 = (76–87)$, $b_{s_3} = (7–9)$; $F_4 = (6.4–6.8)(–6.9)$ times as long as $t$, $F_5$ and $F_6$ (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 its greatest diameter and (0.7–)0.8(–0.9) of the length of calyces. Globulus $g$ axes attened bottom; width of $g$ 1.0(–1.1) times as long as greatest diameter of $t$. Antennae glabrous.

Setae on tergites as posteriormedian 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: $T_1 = 100$, $T_2 = (98–110)$, $T_3 = (98–110)$, $T_4 = (130–142)$; 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, $T_1$ (Figure 44E) also with ovoid end-swelling 0.1 of the length of bothriotrich and with pubescence as on branches (and in one paratype with two short pubescent branches); axes of $T_4$ 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 44I) 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, \( a\), diverging, st clavate striate, also curved inward and converging. Distance \( a_i-a_j\) as long as \( a_i\); distance \( a_i-a_j\) 2.0(–)2.9 times as long as distance \( a_i-a_j\); distance \( st-st\) 2.2(–)2.6 times as long as \( st\) and 1.6(–)1.7 times as long as distance \( a_i-a_j\). Cuticle glabrous.

Sternum: posterior margin between b, almost straight. Relative lengths of setae (pygidal \( a_1 = 10\)): \( b_1 = 30(–)35, b_2 = 10(–)14\); setae cylindrical annulate–striate, b, curved inward, diverging; \( b, 1.2(–)1.5\) 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, posterolateral 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 \( T_r-T_r\).

Genus Juxtapauropus Scheller, 2007


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; 2\text{nd row: } a_3 = 11, a_3 = 13, a_4 = 15; 3\text{rd row: } a_5 = 7, a_5 = 8; 4\text{th row: } a_6 = 11, a_7 = 20, a_8 = 14, a_9 = 15; \text{ lateral group setae not studied. Ratio } a_1/a_1-a_9 \text{ in } 1\text{st row } 1.1, 2\text{nd row } 0.6, 3\text{rd row } 1.0, 4\text{th row } 0.9. \text{ 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. \text{ Tergal seta } p \text{ (as long as –)1.2 times as long as tergal branch } t. \text{ The latter branch subcylindrical, (3.5–)3.7 times as long as its greatest diameter and as long as sternal branch } s, \text{ that branch (2.7–)2.9 times as long as its greatest diameter, anterodistal corner truncate. Seta } q \text{ densely striate-annulate, (0.8–)0.9 of the length of } s. \text{ Relative lengths of flagella (basal segments included) }

U. SCHELLER

100

Figure 45A–I
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, T₃; 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: \( F_1 = 100, b_5 = 9; F_3 = (48–)49, b_5 = 7; F_3 = (98–)111, b_5 = 9. F_1 2.2 \text{ times as long as } t, F_2 \) and \( F_3 \) as long as \((–1.1 \text{ times as long as})\) and 2.3 \text{ times as long as } s \text{ respectively.} \text{ Distal calyces helmet-shaped, distal part of flagella axes somewhat widened below calyces. Globulus g 1.3 \text{ times as long as wide, } \approx 7 \text{ bracts, capsule flattened; width of } g (0.7–)0.8 \text{ of the greatest diameter of } t. \text{ 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 \text{ 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), \( T_4 = 143–149; \text{ axes simple, thin, straight. Pubescence hairs simple, oblique–erect, longest on distal halves of } T_i \) and \( T_5. \)

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) \text{ times as long as its greatest diameter. Setae cylindrical, blunt, with short pubescence.}

Pygidium (Figures 45H, I).

Tergum: posterior margin with large triangular median lobe behind \( a_i. \) Relative lengths of setae: \( a_1 = 10, a_2 = 9, a_3 = 12(–13), a_4 = 1; a \)-setae tapering, with short pubescence, curved inward, \( st \) somewhat clavate and diverging, faintly pubescent. Distance \( a_i–a_i \) 0.6 \text{ of the length of } a_i; distance \( a_i–a_i \) twice longer than distance \( a_i–a_i, \) \text{ distance } st–st \( (2.8–)3.0 \text{ times as long as } st \) and \( (0.7–)0.8 \text{ of distance } a_i–a_i. \)

Sternum: posterior margin between \( b_1 \) with deep indentation and small semi-circular round lobe below anal plate. Relative lengths of setae (pygidial \( a_i = 10): b_1 = (9–)10, b_2 = 2; \text{ setae cylindrical, blunt, with short pubescence, } b_1 \text{ as long as interdistance, } b_3 0.4(–0.5) \text{ of interdistance.}

Anal plate (Figures 45H, I) horizontal, 1.2 \text{ 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).
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, a1 in 2nd row, a9 and a8 in 4th row and lateral group setae cylindrical, relative lengths of setae, 1st row: a1 = 10, a9 = (8–)10; 2nd row: a1 = (10–)12(–13), a9 = (13–)14, a11 = (11–)13–16; 3rd row: a1 = 8(–11), a9 = 10(–12); 4th row: a1 = 10(–14), a9 = 11(–12), a8 = (10–)12, a7 = (9–16); lateral group setae: l1 = (19–)21, l2 = 20 and l3 = ?. Ratio a9/a8–a7 = 1 in 4th 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 distance. 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-thickist, 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: F1 = 100, bs1 = 11(–13); F2 = (51–)54(–56), bs2 = 10(–12); F3 = 10(–111), bs3 = (13–)14, F4 = (2.5–)2.7(–2.9) times as long as t, F2 and F3 (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 subshperical 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 a1. 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: T1 = 100, T2 = 102(–135), T3 = 111(–114), T4 = 120(–137), T5 = (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 t. Relative lengths of setae: a1 = 10, a9 = 10(–15), a1 = 18(–28), st = 2(–4); setae curved inward, a-setae with short pubescence, a1 thick cylindrical, a9 cylindrical (–tapering), a9 tapering, st very short, glabrous, converging. Distance a1–a1, 1.6(–)1.9 of the length of a1, distance a1–a9, 3 times longer than distance a1–a1; distance st–st 4(–6) times longer than st and (0.8–)1.0 of the length of distance a1–a1. Cuticle glabrous.

Sternum: posterior margin between b1 with large triangular lobe. Relative lengths of setae (pygidial a1 = 10): b1 = 25(–40). The b1 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 posteriormedian 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


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, 1949: 53.

DISTRIBUTION

Victoria. Melbourne. Known also from: U.S.A.; Denmark, Great Britain, France, Switzerland, Morocco, Algeria, Azores.
**Stylopaurops pedunculatus** (Lubbock, 1867)

*Paurops pedunculatus* Lubbock, 1867: 185, plate 10, figure 20.

**Stylopaurops pedunculatus** (Lubbock, 1867): Remy, 1949: 53.

**DISTRIBUTION**

Victoria, Melbourne.

*Stylopaurops 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.

---

**Stylopauropoides Remy, 1956**

**TYPE SPECIES**


**Stylopauropoides blastema** sp. nov.

urn:lsid:zoobank.org:act:2838C5E5-8409-4DEE-A979-69868C1217EE

Figure 47A–I

**MATERIAL EXAMINED**

**Holotype**

_Australia: Western Australia:_ ad. 9( ), c. 11 km SSE of Dwellingup, Murray River site, in soil, 18 February 1981 (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 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, T₁; F, T₂; 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 sublaterial 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 \(a_2/a_1\) 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 temporal 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 \(t\) 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: \(F_1 = 100\), \(b_{s1} = (12–)14(–15)\); \(F_2 = (83–)88(–96)\), \(b_{s2} = 14(–16)\); \(F_3 = (72–)82(–84)\), \(b_{s3} = (13–)16\). \(F_1 = (2.4–)2.5(–2.7)\) times as long as \(t\), \(F_2 = F_2(1.9–)2.0\) 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 fuscate, primary branch foliowform 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 1, 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 seta \(a_9\).

_Bothriotricha_ (Figures 47E, F): relative lengths: \(T_1 = 100\), \(T_1 = (78–)97(–113)\) (Figure 47E), \(T_1 = 96(–)108\), \(T_2 = 116(–)127\), \(T_3 = (149–)157(–174)\); axes simple thin straight, except in proximal half of \(T_1\) there being moderately thickened (Figure 47F). Pubescence hairs on \(T_1\) 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 fuscate, 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: \(a_1 = 10\), \(a_2 = (18–)19\), \(a_3 = (22–)25\); \(s = 3(–)4\); setae curved inward, \(a\)-setae tapering, with short pubescence distally, \(s\) cylindrical striate; \(a_1\) and \(s\) somewhat converging. Distance \(a_{1–a_1}\) (2.7–)3.0 times as long as \(a_1\); distance \(a_{2–a_2}\) as long as (1.5 times as long as) distance \(a_{2–a_2}\); distance \(st–st\) (5.6–)6.6(–6.7) times as long as \(st\) and (0.6–)0.7 of distance \(a_{2–a_2}\).

_Sternum:_ posterior margin above anal plate with deep indentation and broad median triangular lobe, rounded posteriorly. Relative lengths of setae (pygidial \(a_1 = 10\); \(b = (26–)29\); 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**


**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(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 December 1980; 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), 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), 3 juv. 5, 7 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.**

**Material Examined**

**Holotype**

**Australia: Western Australia:** ad. 9(), c. 22 km SE. of Dwellingup, Yarragil Brook site, 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 tegmental appendage 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): tegetal setae of medium length, densely striate, anterior and submedian ones somewhat clavate, sublateral and lateral ones cylindrical. Relative lengths of setae, 1st row: \( a_1 = 10, a_2 = 9; 2\text{nd row}: a_1 = 10, a_2 = 16, a_3 = 7; 3\text{rd row}: a_1 = 9, a_2 = 11; 4\text{th row}: a_1 = 11, a_2 = a_3 = 21, a_4 = 12. \) Ratio \( a_1/a_2-a_3 \) in 1st and 4th rows 1.1, 2nd row 0.7, 3rd row 0.9. Temporal organs ovoid in tegetal 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:
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, T₁; F, T₂; 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, 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 \( a_i \). 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; \( T_1 \) and \( T_2 \) with thicker axes in proximal half; pubescence of strong, simple, oblique hairs on \( T_1 \) and proximal 2/3 of \( T_3 \), distal part of the latter with branched pubescence (Figure 48F); branched parts of \( T_4 \) and \( T_5 \) 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: \( a_1 = 10, a_2 = 8, a_3 = 11, a_4 = 5 \); setae strong tapering, with oblique pubescence, \( a_4 \) cylindrical straight, \( a_3 \) and \( a_2 \) tapering, somewhat curved inward and converging, \( a_1 \) cylindrical, blunt, faintly pubescent, curved inward, converging. Distance \( a_4-a_3 \) 0.8 of the length of \( a_3 \); distance \( a_3-a_2 \) 3 times longer than distance \( a_2-a_1 \); distance \( st-st \) 2.0 times longer than \( st \) and 1.2 times as long as distance \( a_2-a_1 \).

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 \( T_i \) and \( T_j \)).

**Stylopauropoides erectus Scheller, 2009**


**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.**


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, Yarragal 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( ), Yarragal 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, Yarragal Brook site, 11 August 1980; 9 ad.

**U. SCHELLER**

From the Greek dendrodes = tree-like (referring to the appearance of the bothriotricha \( T_i \) and \( T_j \)).
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, T₅; G, T₃.  
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 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 posteriormedian 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 $a_1/a_2/a_1$ 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 $l$, 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, $p', p''$ 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: $F_1 = 100$, $b_s = (7–)8(–10)$; $F_2 = (68–)79(–87)$, $b_s = 8(–11)$; $F_3 = (71–)81(–89)$, $b_s = 8(–11)$, $F_4 = (2.4–)2.9(–3.2)$ 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 calycyae helmet-shaped; distal part of flagella axes widened only just below calycyae. Globulus $g$ (1.5–)1.6(–1.7) times as long as wide, $\approx 14$ bracts, capsule spherical; width of $g$ (0.9–)1.0 of the 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 $T_5$ (Figure 49F). Pubescence hairs simple on $T_1–T_4$ and on proximal halves of $T_5$ and $T_6$, short on $T_4$ and $T_5$, hairs strongest and most spread out on $T_5$, long erect branched distally and whorled on distal halves of $T_5$; and $T_6$ (Figure 49G).

**Genital papillae** (Figure 50A): glabrous, 1.6 times as long as its 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 tarsal side a few 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 $a_2–a_2$ 4.0(–)4.5 times as long as distance $a_1–a_1$; 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 $b$, 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


**DISTRIBUTION**

Tasmania, in the northwest: Savage River and Hibs Lagoon. Not known outside Australia.
**Stylopauropoides hetaeros Scheller, 2009**


**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**


**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**


**DISTRIBUTION**
Tasmania, in the northwest: Savage River, Cradle Mountain and Hibbs Lagoon; 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**


**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**


**DISTRIBUTION**
Western Australia, Mundaring Shire. Not known outside Australia.

**Stylopauropoides scissus Scheller, 2009**


**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**


**TYPE SPECIES**
*Rabaudauropus milloti* Remy, 1953, by monotypy.

**Rabaudauropus notialis** sp. nov.


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, T1; F, T3; 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 \(a_l/a_1\) 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: \( F_1 = 100, b_{x_1} = 9; F_2 = 89(–117), b_{x_2} = (9–)10; F_1 = (52–)58, b_{x_3} = 8. \) \( F_1, (2.3–)2.8 \) times as long as \( t \), \( F_1 \) and \( F_2, 2.5(–)3.3 \) 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, \( \approx \)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 pubescence, 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 \( a_i \). 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 \( T_7 \) with short oblique pubescence of simple hairs on proximal 1/3, more outward with longer, erect, ramose hairs arranged in whorls; \( T_s-T_s \) with strong, simple, oblique hairs, dense on \( T_1 \) (Figure 51F), sparser on \( T_1 \) and \( T_7 \).

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 \( s \). Relative lengths of setae: \( a_i = 10, a_i = 10(–12), a_i = (14–)15, s = 4(–6); a_i \)-setae tapering pointed, sparsely pubescent with oblique hairs, \( a_i \) and \( a_i \) curved inward and converging, \( s \) cylindrical, blunt, with short pubescence, almost straight and converging. Distance \( a_i-a_i (0.8–)0.9 \) of the length of \( a_i \); distance \( a_i-a_i 1.9(–2.0) \) times as long as distance \( a_i-a_i \); distance \( s-s \) (2.2–)2.6 times as long as \( s \) and 1.2(–1.3) times as long as distance \( a_i-a_i \). Cuticle with very sparse but strong pubescence.

Sternum: the \( b_i \) rounded lobes with low bulge in between. Relative lengths of setae (pygidial \( a_i = 10 \): \( b_i = 22(–25), b_i = 8; \) the \( b_i \) and \( b_i \) thin, cylindrical, blunt, with short pubescence, \( b_i 1.3 \) and \( b_i 0.7 \) 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: genital 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

Cauvetaurus 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*, 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): terminal setae annulate–striate, submedian ones somewhat clavate, sublateral and lateral ones cylindrical, their relative lengths: 1st row: *a*₁ = 10, *a₂ = 13; 2nd row: *a*₂ = 9, *a₃ = 22, *a₄ = 12; 3rd row: *a*₁ = 11, *a₂ = 15; 4th row: *a*₁ = 9, *a₂ = 19, *a₃ = 22, *a₄ = 16; lateral group setae not studied. Ratio *a*₄/*a*₃−*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 *l₁* (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: *F₁* = 100, *b₅* = 9; *F₂* = 33, *b₅* = 7; *F₃ = 27, *b₅* = 9; *F₄* 5 times as long as *t*, *F₅* and *F₆* 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 pygidal setae *a*₁. Tergites glabrous.

**Bothriotricha** (Figures 53F, G): relative lengths: *T₁* = 100, *T₂* = 98, *T₃* = 100, *T₄* = 109, *T₅* = 115; all but *T₃* with thin axes and distal 1/3 with short pubescence, distal half of *T₂* with simple almost erect hairs, distal half of *T₃* (Figure 52F), *T₄* and *T₅* with long, ramose hairs arranged in whorls distally, particularly long on *T₃* and *T₅*. The *T₄* (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 53J) 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 *s*. Relative lengths of setae: *a*₁ = 10, *a₂ = 7, *a₃ = 11, *s* = 9; setae indistinctly striate distally, *a*-setae cylindrical, *s* clavate, *a₃* straight, the others curved inward, *s* converging. Distance *a*₁−*a*₂ 0.9 of the length of *a*₁; distance *a₃−a₄* 2.6 times as long as distance *a₄−a₅*; distance *s−st 2.2 times as long as *s* and 1.7 times as long as distance *a₅−a₆*. 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; *b₃* 1.4 times as long as interdistance; *b₄ 0.9 of distance *b₄−b₅*.

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**

*Neospauropus 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 T₅; F, T₁; G, T₃; 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**


**DISTRIBUTION**

Tasmania, in the northeast: Mt Michael. Not known outside Australia.

**Family Amphipauropodidae Scheller, 2008**

**Genus Amphipauropus Scheller, 1984**

**TYPE SPECIES**

*Cauvetauropus rhenanus* Hüther, 1971, by original designation.

**DESCRIPTION**

The genus is amply distinctive and justifiably 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.**

**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 \( a_1/a_2–a_3 \) 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: \( F_1 = 100, b_1 = 12; F_2 = 165, b_3 = 17; F_3 = 130, b_5 = 20; F_5 = 10.7 \) 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 incomensibly 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: \( T_1 = 100, T_2 = 136, T_3 = 127 \). All with short, dense, erect pubescence, \( T_1 \) (Figure 54D) broadly spatulate, \( T_2 \) (Figure 54E) and \( T_3 \) (Figure 54F) claviform with axes divided up into thick disks, \( T_2 \) with longish undivided distal end swelling, \( T_3 \) 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 \( st \).
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, T1; E, T2; F, T5; 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 \( a_1 - a_5 \). 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 t, the bothriotricha T1, 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 mediotalgal plate in the head and all its legs are 5-segmented, but it lacks the pygidial setae t1 and t2, 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 (b1, b2, b3), not two (b1, b1). 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: a1 = 10, a2 = 13; 2nd row: a1 = 11, a2 = 12, a3 = 15; 3rd row: a1 = a2 = 13, a3 = 15; 4th row: a1 = 22, a2 = 15, a3 = 33, a4 = 14. Ratio a1/a3−a1 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 pilus. Mediotalgal plate 1.7 times as broad as long, spatulate, with shallow anteriomediandisc 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’ = p” = 10, p’/u = 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: F1 = 100, bs1 = 15; F2 = 125, bs2 = 19; F3 = 110, bs3 = 17. F1 3.4 times as long as t, F1, F2 and F2.7 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 F1, with flattened bottom on F2. 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 T1, (Figure 55D) and T2 simple, short, erect on proximal halves, increasing in length, ramose and whorled in distal half, on T3 (Figure 55E) oblique, simple hairs only. Relative lengths of bothriotricha: T1 = 100, T2 = 94, T3 = 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*ᵢ−*a*ᵢ 1.1 times as long as *a*ᵢ; distance *a*ᵢ−*a*ᵢ ≈5 times as long as distance *a*ᵢ−*a*ᵢ; distance *st*−*st* 2.8 times as long as the length of *st* and 1.4 times as long as distance *a*ᵢ−*a*ᵢ.* Cuticle glabrous.

**Sternum:** posterior margin straight. Relative lengths of setae (pygidial *a*₁ = 10): *b*₁ = 12, *b*₂ = 7, *b*₃ = 8. Setae

![Polypauropodidae sp., juv. 5: A, head, median and right part; B, right antenna, sternal view; C, collar segment, median and left part, sternal view; D, T₁; E, T₃; 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.](image-url)
cylindrical, blunt, annulate. $b_1$ 0.9 of interdistance, clavate, pubescence as on $a$-setae of tergum; $b_2$ 0.3 of interdistance, $b_3$ 4 times as long as distance $b_1–b_2$, $b_4$ 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**


**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.


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 (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 $T_s$, fusiform, not similar to an inverted cone, and by some dissimilarities in the pygidial characters: setae $a_i$ of the tergum striate, not glabrous, setae $b_i$ blunt, not pointed, and the shape of the anal plate, lateral sides evenly convex with posteralateral corners, not knobby 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 posteralateral 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 ptilostil 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 posteraldistal one. Seta $q$ straight,
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, Tj; 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: \(F_1 = 100\), \(b_s = (7–)8\); \(F_2 = (38–)40\); \(b_s = 7(–)8\); \(F_3 = (84–)87\); \(b_s = (7–)8\). \(F_1\) 3.6–3.7; \(b_s = 1.7(–)1.9\) and \(3.8–3.9\) times as long as \(s\) respectively; \(F_3\) 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 bothriotrichia. 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 \(T_1\) thin, with very short pubescence. The \(T_1\) (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 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: \(a_1 = 10\), \(a_2 = 10(–)11\), \(a_3 = 12(–)15\), \(s_t = 7\). \(a_1\), \(a_2\) and \(s_t\) 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 \(a_3–a_3\); distance \(s_t–s_t\) 6.0 times as long as \(s_t\) 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 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 lobes, 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

\(Eurypauropus\) \(jacobseni\) 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 posteriormedian point. Setae glabrous, a–setae a little converging, 1 and 5 somewhat clavate, 2 and 4 cylindrical. Lengths of setae: \(a_1 = 9\), \(a_2 = 5\), \(a_3 = 8\), \(s_1 = 72 \mu m\). Distance \(a_1-a_1 = 10\), \(a_2-a_2 = 20\), \(a_3-a_3 = 65\), \(a_4-a_4 = 5 \mu m\), \(a_5-a_5 = 7\), \(s_1-s_1 = 11 \mu m\). Distance \(a_1-a_1\) 1.1 times as long as \(a_2-a_2\) 0.7 of distance \(a_3-a_3\), distance \(s_1-s_1 = 5\) times longer than \(s_1\) 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 \(\mu m\), thin, pointed, \(b_3\) =?. Distance \(b_1-b_1 = 35\), \(b_1-b_2 = 25\), \(b_3-b_3 = 24 \mu m\); \(b_2 = 0.7\) 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, Sydney (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 rainforests most species were collected in upper horizons under moss and in litter, in the jarrah forest the majority of species 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. Decapauporus, Nesopauropus, Amphiapauropus) seem to be more sensitive to changes in the humidity than larger ones (e.g. Pauropus, Stylopauropus, Stylopauropodidae) 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, Decapauporus, 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, Decapauporus, Juxtapauropus, Hemipauropus, Stylopauropoides, Rabaudauporus, Nesopauropus, in Polypauropodidae: Polypauropus, and in Antichopaupodidae: Antichopauporus). In addition juveniles of two more species appeared which unfortunately were not possible to name, in a fourth family, Amphiapauropodidae, Amphiapauropus 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 Decapauporus, 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 Decapauporus 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 Decapauporus 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 Decapauporus 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*, *Rabaudauporpus*, *Amphipauropus*, *Antichopauropus*) 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 rain forest 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 rain forest 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. tieysi*, 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 *Pounamaypauropus*, 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*, *Rabaudauporpus*, *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 Africa, southern Asia 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, Atuktiopauropus and Pouamampauropus 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 dubosci 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, Rabaudopauropus. To this group further genera may be added when their ranges have been mapped, Nesopauropus, widely distributed in areas with warmer climates, Kionopauropus and Amphipauropus both occurring in temperate as well as warmer areas. One genus, Stylopaupropus, 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 Stylopaupropoides (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
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.

ACKNOWLEDGEMENTS

Gratitude is expressed to Dr Anthony Postle and his co-workers for having transferred to the author the outstanding collection from the jarrah forest in Western Australia which form the basis of this study. Special thanks go to Dr Mark S. Harvey, Department of Terrestrial Zoology, Western Australian Museum, Perth, for his assistance and great help, and to Dr Graham Milledge, Arachnology Collection, Australian Museum, Sydney, for making Harrison’s material available for study. Special thanks are directed to Professor Gunhild Vidén, University of Gothenburg, Sweden, who kindly controlled the grammatical correctness of the new Latin names.

REFERENCES

The list of references contains all the papers known by the author describing species from Australia and/or treating their occurrence there. To facilitate further studies the reference list is comprehensive also including references to surrounding areas and the descriptions of higher taxa, the latter because they are partly old and spread in papers not easy to find.


Remy, P.A. (1948b). Pauropodes de la Côte d’Ivoire, Afrique...


