A New Genus of Mite (Acari: Acaridae) Phoretic on Bees (Ctenocolletes) in Australia

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Abstract

A new genus, Ctenocolletacarus, and three new species, C. longirostris, C. grandior and C. breirostris, are described from hypopial nymphs from three species of bees (Ctenocolletes, Stenotritidae) from Western Australia.

Introduction

The new mites described herein are known only from hypopial nymphs obtained by T.F. Houston, Western Australian Museum, Perth (WAM), from adult bees (Ctenocolletes, Stenotritidae). Most were secreted in the abdominal tergal pouches of females, but some occurred under the edges of the abdominal terga and on other parts of the bodies of male and female bees (Houston in press).

The holotypes of the new species are deposited in the WAM. Paratypes are also deposited there, in the Institut royal des Sciences naturelles de Belgique, Bruxelles (IRSNB) and in the British Museum (Natural History), London (BMNH).

The host bees are in the WAM and the Western Australian Department of Agriculture, Perth (WADA).

Systematics

Acari: Acaridae

Genus Ctenocolletacarus gen. nov.

Type Species

Ctenocolletacarus longirostris sp. nov.

Diagnosis

With characters of hypopial nymphs of the Acaridae, but differing from all other genera of this family by prolongation of antero-dorsal extremity of idiosoma into a well-developed rostrum. Resembling Caloglyphus Berlese, 1923 (= ?Sancassania Oudemans, 1916) and Lackerbaueria Zachvatkin, 1941 but differing by presence of a rostrum, its longer sternum (together with epimeres II)

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almost reaching coxae III and its transversely striated dorsal shields. Differing from _Lackerbaueria_ in coxal fields III being separated medially (fused in _Lackerbaueria_). Resembling _Paraceroglyphus_ Fain and Beaucournu, 1973 in epimeres III-IV forming closed coxal fields (narrowly separated medially) but differing in presence of rostrum, longer sternum, presence of 5 foliate setae on tarsi IV and one saucer-like seta on tarsi I-II.

**Description**

Body oval. Dorsal surface slightly convex. Sejugal furrow strong, well forward. Dorsum of body almost completely punctate. Dorsal setae short, either thin or spinous, except long piliform $\xi$ 5. Oil glands opening between setae $h$ and $\xi$ 2.

Venter: Palposoma completely covered by rostrum, longer than wide, with anterior margin slightly incised, bearing two solenidia $\alpha$ and two pairs of short lateral setae. Sternum loosely connected posteriorly with epimeres II. Two narrow paramedian poorly sclerotized pregenital sclerites present. Suctorial plate large, wider than long. Anterior suckers distinctly smaller than posterior suckers; conoids approximately on same line as posterior suckers (Fain 1973). Legs rather short and thick, ending in a well-developed curved claw.

Chaetotaxy of body: Setae $v$ i spinose; $v$ e short, thinner than $v$ i; $s$ cx very thin. Other setae present: $d$ 1 to $d$ 5, $k$ 1 to $k$ 5; $h$; $s$ $h$; $g$ $a$; $g$ $m$; $g$ $p$. Setae cx I, cx III and $g$ $p$ modified into conoids (Fain 1973).

Legs: tarsi I-II with 1 long simple seta and 2 short setae (one thin and one spine-like). Tarsi III with 7 foliate and 1 piliform setae. Tarsi IV with 5 foliate and 3 unequal piliform setae (1 very long, 1 long and 1 short). Tibiae I-II with 2-2-1-1 setae. Genua 2-2-1-0. Femora 1-1-0-1. Trochanters 1-1-1-0. Solenidia: Tarsus I with $\omega$ 1 slightly dilated; $\omega$ 3 slightly pore apical and tapering at apex: $\omega$ 2 cylindrical, more basal. Tibiae I-IV with a well-developed solenidion.

**Key to Species of Ctenocolletacarus**

1 Idiosoma prolonged anteriorly by a short rostrum.
   Most of dorsal setae spinose. Dorsal striations forming
   a network .............................................. _C. brevirostris_ sp. nov.
   Idiosoma prolonged anteriorly by a long rostrum.
   Dorsal setae thin, piliform. Dorsal striations not
   forming a network .............................................. 2

2 Rostrum long and narrow. Posterior suckers slightly
   wider (18-19 $\mu$m) than anterior suckers (13-15 $\mu$m).
   Idiosoma 340-426 $\mu$m long ....................... _C. longirostris_ sp. nov.
   Rostrum relatively shorter and thicker. Posterior
   suckers almost twice as wide (33-36 $\mu$m) as anterior
   suckers (18-20 $\mu$m). Idiosoma 548-585 $\mu$m long .......... _C. grandior_ sp. nov.
A. Fain

_Ctenocolletacarus longirostris_ sp. nov.

Figures 1-6, 10

**Holotype**

WAM 83/169, hypopus on slide, ex tergal pouches of _Ctenocolletes nicholsoni_ ♀; 200 km N of Geraldton, Western Australia, 20.viii.1971, T.F. Houston.

**Paratypes**

_Western Australia_

_Ctenocolletes centralis:_ 50 hypopi ex tergal pouches of ♀ (WAM 82/1890), 12.5 km ENE of Anketell HS (28°02′S, 118°51′E), 6-7.ix.1981, T.F. Houston (WAM 32 hypopi, WAM 83/360-2; IRSNB 10 hypopi; BMNH 8 hypopi); 12 hypopi from various parts of body of ♂♂ (WAM 82/1893, WADA TFH R15), 4.8 km S of Neale Junction (28°18′S, 125°49′E), 16.vii.1974, K.T. Richards (WAM 8 hypopi, WAM 83; IRSNB 2 hypopi; BMNH 2 hypopi).

_Ctenocolletes nicholsoni:_ 35 hypopi, same data as for holotype (WAM 27 hypopi, WAM 83/363-8; IRSNB 8 hypopi); 13 hypopi from ♂, 16 km S of Nerren Nerren HS (27°08′S, 114°38′E), 19.viii.1980, C.A. Howard and T.F. Houston 329-1 (WAM 8 hypopi, WAM 83/379-82; IRSNB 5 hypopi); 40 hypopi ex tergal pouches of ♂ (WAM 82/1881), 37 km NE of Laverton, 10-12.ix.1982, B. Hanich and T.F. Houston (WAM 32 hypopi, WAM 83/369-73; IRSNB 6 hypopi; BMNH 2 hypopi).

**Diagnosis**

Distinguished from the two other species of the genus by the long, narrow shape of the rostrum.

**Description**

Holotype 412 μm long (including rostrum), 249 μm wide (maximum width). Measurements in 8 paratypes (in μm): 426 x 246; 420 x 248; 395 x 240; 390 x 240; 380 x 242; 368 x 213; 350 x 210; 340 x 210. Specimens measuring less than 380 μm are less frequent than those exceeding this length. These small specimens correspond closely to the larger ones except for size of body and of some organs (setae, suckers, etc.). Dorsum: Rostrum 80 μm long and 27 μm wide in its middle. Cuticle covering the rostrum raised to form a crest. Setae _ν i_ are thick spines, _ν e_ are smaller and thinner spines. All dorsal setae thin and short except _κ _5 125 μm long. Venter: Palposoma 30 μm long, 19 μm wide; _α _28-30 μm long. Sternum 87 μm long. Pregenital sclerites fused anteriorly with epimeres IV. Suctorial plate 94 μm wide; anterior suckers 13-15 μm wide, posterior suckers 18-19 μm wide; they are preceded by a flat rounded area. Legs relatively thick and short. Length of tarsi I-IV (in μm): 24-24-27-27. Chaetotaxy of legs I-IV: Tarsi I-II with 2 simple setae (one of 50 μm and one of 12-15 μm) and one spinous seta.

_Ctenocolletacarus grandior_ sp. nov.

Figures 8-9

**Holotype**

WAM 83/170, hypopus on slide, ex tergal pouches of _Ctenocolletes centralis_ ♀ (WAM 82/1890); 12.5 km ENE of Anketell HS (28°02′S, 118°51′E), Western Australia, 6-7.ix.1981, T.F. Houston.
Ctenocolletacarus longirostris sp. nov. Hypopus in ventral view.
Figures 2-5  *Ctenocolletacarus longirostris* sp. nov. Hypopus. Tarsus I in dorsal view (2) and ventral view (3). Tarsi III (4) and IV (5) in lateral view.

**Paratypes**

*Western Australia*

*Ctenocolletes centralis*: 11 hypopi from various parts of body of ♂ (WAM 82/1893); 4.8 km S of Neale Junction (28°18'S, 125°49'E), 16.vii.1974, K.T. Richards (WAM 6 hypopi, WAM 83/357-9; IRSNB 3 hypopi; BMNH 2 hypopi).
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**Diagnosis**

Distinguished from *C. longirostris* by the relatively wider and shorter rostrum, the much larger idiosoma and the relatively larger posterior suckers.

**Description**

Holotype 550 μm long (including rostrum), 345 μm wide. In 7 paratypes, measurements (in μm): 585 x 375; 572 x 360; 570 x 365; 569 x 350; 560 x 360; 555 x 345; 548 x 325 (the smallest specimen of the collection). Postero-lateral margins of idiosoma membranous. Dorsum as in *C. longirostris*. Rostrum relatively shorter but wider in its posterior half than in that species. Ventral surface

![Figure 6](image_url)  
*Ctenocolletacarus longirostris* sp. nov. Hypopus in dorsal view.

![Figure 7](image_url)  
*Ctenocolletacarus brevirostris* sp. nov. Hypopus in dorsal view.

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Figures 8-9  *Ctenocolletacarus grandior* sp. nov. Hypopus in ventral view (8). Rostrum and palposoma in ventral view (9).

Figure 10  *Ctenocolletacarus longirostris* sp. nov. Hypopus. Rostrum and palposoma in ventral view.

Figure 11  *Ctenocolletacarus brevirostris* sp. nov. Hypopus. Rostrum and palposoma in ventral view.
Figures 12-13 *Ctenocolletacarus brevirostris* sp. nov. Hypopus in ventral view (12). Tarsus I in dorsal view (13).
as in *C. longirostris* except the suctorial plate which is relatively much larger (width 155 µm) and bears much larger suckers. Anterior suckers 18-20 µm wide, posterior suckers 33-36 µm wide (exceptionally 38 µm). Lateral conoids slightly more anterior than posterior ones and preceded by large oval flat area. Legs longer than in *C. longirostris*; length of tarsi (in µm): 31-31-33-33.

**Ctenocolletacarus brevirostris** sp. nov.

Figures 7, 11-13

**Holotype**

WAM 83/171, hypopus on slide, ex tergal pouches of *Ctenocolletes albomarginatus* ? (WAM 47/1232); Merredin, Western Australia, presumably in 1947, A.M. Douglas.

**Paratypes**

**Western Australia**

*Ctenocolletes albomarginatus*: 20 hypopi, same data as for holotype (WAM 16 hypopi, WAM 83/353-5; IRSNB 4 hypopi); 28 hypopi ex tergal pouches of ? (WAM 82/1879); 37 km NE of Laverton (28°21'S, 122°37'E), 10-12.ix.1982, B. Hanich and T.F. Houston (WAM 29 hypopi, WAM 83/350-2; IRSNB 5 hypopi; BMNH 4 hypopi); 37 hypopi from body of ♂ (WAM 82/1879); 21 km N of Geraldton, 19.viii.1971, T.F. Houston (WAM 5 hypopi, WAM 83/348-9; IRSNB 2 hypopi; BMNH 2 hypopi).

**Diagnosis**

Differs from the two other species in the genus by the much shorter rostrum, the spinose dorsal chaetotaxy and the network formed by the dorsal striation.

**Description**

Holotype 450 µm long, 240 µm wide. In 8 paratypes (in µm): 460 x 265 (largest specimen); 435 x 250; 423 x 237; 405 x 238; 390 x 240; 363 x 225; 340 x 220; 300 x 180 (smallest specimen). Posterior margin of body with very narrow membrane. Dorsum as in *C. longirostris* but transverse lines are connected to each other and form an irregular network. Dorsal setae are short thick spines, sc i situated distinctly in front of sc e. Rostrum short and with rounded apex, bearing small v i setae. Venter: Palposoma slightly longer than wide. Epimeres and suctorial plate as in *C. longirostris*, the plate is 93 µm wide, anterior suckers 15 µm, wide, posterior suckers 21 µm wide. Lateral conoids either on the same line as posterior suckers or slightly behind this line. Legs thicker than in *C. longirostris* and bearing much thicker spines on tibiae I-IV and on genua I-II. Tarsi I-IV 29-29-30 and 30 µm long.

**Discussion**

The material examined was obtained from a relatively small number of host specimens: *C. longirostris* from 3 specimens each of *Ctenocolletes centralis* and
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C. nicholsoni; C. grandior from 2 Ctenocolletes centralis and 1 C. nicholsoni; and C. brevirostris from 3 Ctenocolletes albomarginatus. However, on the basis of these records it appears that C. longirostris and C. grandior share (and are confined to) two bee hosts (Ctenocolletes centralis and C. nicholsoni) while C. brevirostris is confined to a third (C. albomarginatus). This situation reflects the affinities of the host bees where centralis and nicholsoni are very closely related to each other and more distantly related to albomarginatus (Houston 1983).

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References