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Zootaxa 5752 (4): 451–473
https://www.mapress.com/zt/
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Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

https://doi.org/10.11646/zootaxa.5752.4.1
http://zoobank.org/urn:lsid:zoobank.org:pub:EC1F56D6-2A78-4B8D-82CA-7D58CA7219C3

New records of the water mite genus *Koenikea* Wolcott, 1900 (Acari: Unionicolidae) from northern and eastern Australia, with the description of six new species

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Abstract

New records are given of the genus *Koenikea* from northern and eastern Australia. The following six new species are described: *Koenikea yorkensis* **sp. nov.**, *K. brachypalpis* **sp. nov.**, *K. interstitialis* **sp. nov.**, *K. inconspicua* **sp. nov.**, *K. caniaensis* **sp. nov.** and *K. tuberculata* **sp. nov.** The male of *Koenikea piota* Cook, 1986 is described for the first time. A key is provided for all Australian *Koenikea* species.

Key words: Australasia, systematics, new species, distribution

Introduction

The water mite genus *Koenikea* Wolcott, 1900 is widely distributed in the Neotropical and Nearctic regions, with nine subgenera known. Within Australia two subgenera are known, i.e., *Koenikea* s.s. (with one species) and *Notomideopsis* (with 22 species). Moreover, *Notomideopsis* is also known from New Guinea, New Caledonia and Fiji (Smit 2020).

Previous studies on this genus from Australia were published by Lundblad (1941, 1947), K.O. Viets (1977, 1980), Cook (1986) and Smit (1992, 2004, 2007, 2021). *Koenikea* species are found in streams, lakes and a few species are known from interstitial habitats.

In this paper material is treated from northern, eastern and southeastern Australia, including Tasmania. Material from Western Australia was treated in Smit (2021).

Material and Methods

Holotypes and paratypes are lodged in the following museums: QM—Queensland Museum, Brisbane; NTM—Museum and Art Gallery of the Northern Territory. Paratypes and non-type material is lodged in Naturalis Biodiversity Center, Leiden (RMNH). The following abbreviations have been used: asl—above sea level; Cxgl-2—coxoglandularia-2; Dgl-2—dorsoglandularium 2; P1–5—palp segments 1–5; IV-leg-2–6—second to sixth segment of fourth leg; NP—National Park. All measurements are in µm, measurements of palp and leg segments are of the dorsal margins. Ventral length is measured from the tip of Cx-I to posterior idiosoma margin. Numbers are given as males/females/deutonymphs. The photographs of selected structures were made using a camera on a Samsung Galaxy smartphone.

Accepted by M. Sanchez: 27 Nov. 2025; published: 29 Jan. 2026

Systematics

Family Unionicolidae Oudemans

Genus *Koenikea* Wolcott, 1900

Subgenus *Koenikea* Wolcott, 1900

Koenikea sorpresa Cook, 1986

Material examined. **Tasmania**. 0/2/0, Macquairy River at crossing with road C522, 41°54.472 S 147°23.546 E, 162 m asl, 28-iii-2008. **New South Wales**. 1/5/0, Wheeny Creek at crossing with Comleroy Road, Wollemi NP, 1-xii-2003; 0/1/0, Wattamolla Creek, Royal NP, 34°07.911 S 151°06.907 E, 29 m asl, 23-i-2024. **Queensland**. 3/0/0, Lake Moondarra, Mt Isa, 20°35.274 S 139°34.357 E, 8-x-2005; 0/4/0, Davies Creek, Davies Creek NP, 17°00.212 S 145°34.180 E, 753 m asl, 13-x-2005; 0/4/0, Porcupine Creek, Porcupine Gorge NP, 20°21.039 S 144°27.852 E, 23-x-2005; 0/3/0, Little Yabba Creek at Charlie Moreland Campground, Kenilworth, 26°36.928 S 152°39.105 E, 107 m asl, 2-xi-2005; 1/0/0, Yabba Creek at Peach Trees Campground, Jimna, 26°38.251 S 152°26.924 E, 465 m asl, 2-xi-2005; 0/3/0, Emu Creek at Clancy's Camping Area, Benarkin State Forest, 26°58.334 S 152°09.916 E, 162 m asl, 3-xi-2005; 1/0/0, unnamed creek 7.6 km N of Archer River, Cape York Peninsula, 13°23.157 S 142°54.316 E, 103 m asl, 23-x-2014; 0/1/0, Wenlock River at crossing with road to Iron Range NP, 13°05.734 S 142°56.526 E, 108 m asl, 25-x-2014; 0/3/0, Kolan River crossing Gin Gin—Kalpowar Road, 24°44.348 S 151°28.339 E, 149 m asl, 29-xi-2014; 0/2/0, Ewen Maddock Dam, NE of Landsborough, 26°47.795 S 152°59.416 E, 29 m asl, 1-xii-2014. **Northern Territory**. 1/0/0, Manton Dam, 12°51.726 S 131°07.148 E, 24-ix-2005; 0/1/0, Lake Jabiru, 12°40.264 S 132°50.436 E, 43 m asl, 27-ix-2005; 0/1/0, Moline Bottom Rockhole, Kakadu NP, 13°34.418 S 132°15.290 E, 175 m asl, 1-x-2005; 0/1/0, pools Waterfall Creek, upstream of falls, Kakadu NP, 13°25.762 S 132°25.089 E, 143 m asl, 1-x-2005; 2/2/0, Umbrawarra Gorge, Umbrawarra Gorge Nature Park, 13°57.892 S 131°41.620 E, 1-x-2005; 0/1/0, plunge pool Edith falls, Nitmiluk NP, 14°10.899 S 132°11.342 E, 149 m asl, 2-x-2005; 1/5/0, Copperfield Dam, Pine Creek, 13°50.719 S 131°49.095 E, 212 m asl, 2-x-2005; 0/1/0, Edith River downstream of Plunge Pool, Nitmiluk NP, 14°10.885 S 132°11.271 E, 149 m asl, 2-x-2005; 3/3/0, Campbell Springs, 38 km E of Victoria River Roadhouse, Gregory NP, 15°29.749 S, 131°23.328 E, 4-x-2005.

Distribution. New South Wales, Victoria, Queensland, Northern Territory and Western Australia. Reported here for the first time for Tasmania.

Subgenus *Notomideopsis* Wolcott, 1905

Koenikea australica Lundblad, 1941

Material examined. **Tasmania**. 9/15/0, Lake Chisholme, Lake Chisholme Forest Reserve, 41°07.937 S 145°03.952 E, 378 m asl, 21-iii-2008; 1/0/0, Lake Shadow, Lake St Clair-Cradle Mountain NP, 42°05.896 S 146°07.246 E, 965 m asl, 25-iii-2008; 8/0/0, Platypus Tarn, Mt Field NP, 42°40.443 S 146°35.146 E, 955 m asl, 27-iii-2008; 1/0/0, Macquairy River at crossing with road C522, 41°54.472 S 147°23.546 E, 162 m asl, 28-iii-2008. **Victoria**. 1/0/0, rockpool Buandik Falls, Grampians NP, 37°14.803 S 142°16.914 E, 16-iii-2008. **South Australia**. 7/2/0, Picaninnie Ponds, Picaninnie Ponds Conservation Park, 38°02.850 S 140°56.610 E, 13 m asl, 3-iv-2008; 1/0/0, Ewens Pond 1, Ewens Ponds Conservation Park, 38°01.566 S 140°47.434 E, 11 m asl, 4-iv-2008.

Distribution. Tasmania, New South Wales, Victoria, Queensland and Western Australia. Reported here for the first time for South Australia.

Koenikea branacha Cook, 1986

Material examined. **New South Wales**. 0/1/0, Bombala River at crossing with New Line Road, 36°42.402 S 149°23.688 E, 782 m asl, 11-xii-2003. **Queensland**. 0/2/0, Mt Carbine Dam, Mt Carbine, 16°32.019 S 145°07.525

E, 358 m asl, 14-x-2005; 0/1/0, Little Yabba Creek at Charlie Moreland Campground, Kenilworth, 26°36.928 S 152°39.105 E, 107 m asl, 2-xi-2005; 0/3/0, unnamed creek 7.6 km N of Archer River, Cape York Peninsula, 13°23.157 S 142°54.316 E, 103 m asl, 23-x-2014; 0/1/0, Archer River, Cape York Peninsula, 13°26.041 S 142°56.546 E, 93 m asl, 23-x-2014; 0/1/0, Mango Lagoon, Oyala Thumotang NP, 13°37.838 S 142°34.627 E, 73 m asl, 24-x-2014; 3/4/0, West Claudie River at crossing with Portland Road, Iron Range NP, 12°44.352 S 143°15.246 E, 64 m asl, 26-x-2014; 1/2/0, Brown Creek at crossing with road to Iron Range NP, 12°45.294 S 143°06.328 E, 53 m asl, 27-x-2014; 2/0/0, Alligator Creek, pool, upstream, Bowling Green Bay NP, 19°26.740 S 146°58.471 E, 79 m asl, 11-xi-2014; 4/3/0, Little Yabba Creek at crossing with road Kenilworth-Maleny, 26°37.427 S 152°41.334 E, 98 m asl, 19-xi-2014; 0/2/0, Kolan River crossing Gin Gin—Kalpowar Road, 24°44.348 S 151°28.339 E, 149 m asl, 29-xi-2014; 2/4/0, Neurum Creek downstream of Rockhole, d'Aquilar NP, 27°02.804 S 152°41.516 E, 197 m asl, 30-xi-2014. **Northern Territory**. 0/1/0, Manton Dam, 12°51.726 S 131°07.148 E, 24-ix-2005; 1/1/0, Wangi Creek upstream of Wangi Falls, Litchfield NP, 13°09.832 S 130°41.166 E, 25-ix-2005; 0/1/0, Florence Creek downstream Florence Falls, Litchfield NP, 13°05.885 S 130°46.999 E, 25-ix-2005; 0/2/0, Walker Creek, Litchfield NP, 13°04.694 S 130°41.929 E, 161 m asl, 25-ix-2005; 0/1/0, Barramundie Creek down stream of plunge pool, Kakadu NP, 13°19.036 S 132°26.279 E, 28-ix-2005; 1/1/0, plunge pool Gunlom, Kakadu NP, 13°25.917 S 132°24.989 E, 30-ix-2005; 0/1/0, Moline Bottom Rockhole, Kakadu NP, 13°34.418 S 132°15.290 E, 175 m asl, 1-x-2005; 0/2/0, pools Waterfall Creek, upstream of falls, Kakadu NP, 13°25.762 S 132°25.089 E, 143 m asl, 1-x-2005; 8/7/0, Umbrawarra Gorge, Umbrawarra Gorge Nature Park, 13°57.892 S 131°41.620 E, 1-x-2005; 3/3/0, Ferny Gully, Kakadu NP, 13°33.810 S 132°17.563 E, 1-x-2005; 1/4/0, Copperfield Dam, Pine Creek, 13°50.719 S 131°49.095 E, 212 m asl, 2-x-2005; 2/4/0, Edith River downstream of Plunge Pool, Nitmiluk NP, 14°10.885 S 132°11.271 E, 149 m asl, 2-x-2005; 0/2/0, small pool downstream of Southern Rockhole, Nitmiluk NP, 14°18.755 S 132°26.683 E, 3-x-2005; 0/3/0, Lily Pond, Katherine Gorge, Nitmiluk NP, 14°18.801 S 132°28.326 E, 3-x-2005; 0/1/0, Campbell Springs, 38 km E of Victoria River Roadhouse, Gregory NP, 15°29.749 S 131°23.328 E, 4-x-2005; 0/3/0, Wenlock River at crossing with road to Iron Range NP, 13°05.734 S 142°56.526 E, 108 m asl, 25-x-2014. 1/0/0, Wangi Creek upstream of Wangi Falls, Litchfield NP, 13°09.832 S 130°41.166 E, 25-ix-2005, dissected and slide mounted (RMNH).

Distribution. New South Wales, South Australia, Queensland, Northern Territory and Western Australia.

Koenikea circularis Smit, 2004

Material examined. **Northern Territory**. 0/1/0, Wangi Creek upstream of Wangi Falls, Litchfield NP, 13°09.832 S 130°41.166 E, 25-ix-2005; 1/1/0, Florence Creek downstream Florence Falls, Litchfield NP, 13°05.885 S 130°46.999 E, 25-ix-2005; 1/0/0, Walker Creek, Litchfield NP, 13°04.694 S 130°41.929 E, 161 m asl, 25-ix-2005; 0/1/0, plunge pool Gunlom, Kakadu NP, 13°25.917 S 132°24.989 E, 30-ix-2005.

Distribution. Northern Territory and Western Australia.

Koenikea crinita Cook, 1986

Material examined. **Tasmania**. 1/2/0, Rapid River at crossing with South Arthur River Forest Drive, 41°09.287 S 145°05.998 E, 70 m asl, 22-iii-2008. **New South Wales**. 0/1/0, Nymboida River at Platypus Flat, Nymboi-Binderay NP, 30°11.146 S 152°41.499 E, 443 m asl, 9-xi-2003; 0/1/0, Wheeny Creek at crossing with Comleroy Road, 1-xii-2003; 0/3/0, Colo River at crossing with Putty Road, 33°25.959 S 150°49.688 E, 1-xii-2003; 1/0/0, White Rock River at crossing with Imlay Road, South East Forests NP, 37°08.121 S 149°21.370 E, 505 m asl, 10-xii-2003; 0/2/0, Wog Wog River at crossing with Wog Way, 37°04.986 S 149°29.027 E, 332 m asl, 10-xii-2003; 3/13/1, Bombala River at crossing with New Line Road, 36°42.402 S 149°23.688 E, 782 m asl, 11-xii-2003; 0/2/0, Shoalhaven River at Berlang Camping Area, Deua NP, 35°43.487 S 149°38.911 E, 706 m asl, 14-xii-2003; 0/3/0, Bunnai Creek at crossing with Pointer Dam Road, Morton NP, 35°15.599 S 150°20.849 E, 469 m asl, 17-xii-2003; 0/1/0, Never Never Creek, Tallywood Point, 30°21.624 S 152°54.269 E, 7-xi-2005; 0/1/0, Wheeny Creek, Wollemi NP, 33°27.367 S 150°42.998 E, 75 m asl, 26-i-2024. **Queensland**. 0/2/0, Tim Shea Creek near Tim Shea Falls, Bunya Mountains NP, 18-xi-2003; 0/1/0, Saddle-tree Creek, Bunya Mountains NP, 19-xi-2003; 1/0/0, Barkers Creek at Little Falls, Bunya Mountains NP, 26°51'58,16"S 151°34'49,61"E, 19-xi-2003; 0/1/0, Broken River, Eungella NP, 21°10.069 S

148°30.676 E, 25-x-2005; 1/1/0, Buaraba Creek, Ravensbourne NP, 4-xi-2005; 1/0/0, Booloumba Creek crossing Booloumba Creek Road, Conondale NP, 26°38.084 S 152°38.990 E, 14 m asl, 19-xi-2014.

Distribution. Tasmania, New South Wales, Victoria and Queensland.

Koenikea distans K.O. Viets, 1980

Material examined. **Queensland**. 0/1/0, Babinda River, Wooroonooran NP, 17°20.484 S 145°52.113 E, 16-x-2005; 0/2/0, Anamoor Creek at Anamoor Campground, Anamoor State Forest, 26°21.579 S 152°33.385 E, 119 m asl, 2-xi-2005; 0/1/0, Calgoa Creek at crossing with Brooweena—Woologa Road, 25°51.572 S 152°18.069 E, 70 m asl, 18-xi-2014; 0/1/0, Booloumba Creek crossing Booloumba Creek Road, Conondale NP, 26°38.084 S 152°38.990 E, 14 m asl, 19-xi-2014 ; 0/1/0, Kolan River crossing Gin Gin—Kalpowar Road, 24°44.348 S 151°28.339 E, 149 m asl, 29-xi-2014. **Northern Territory**. 1/10/0, Umbrawarra Gorge, Umbrawarra Gorge Nature Park, 13°57.892 S 131°41.620 E, 1-x-2005; 0/1/0, small pool downstream of Southern Rockhole, Nitmiluk NP, 14°18.755 S 132°26.683 E, 3-x-2005.

Distribution. New South Wales, Queensland, Northern Territory, Western Australia.

Koenikea jacunda Cook, 1986

Material examined. **Queensland**. 7/13/0, Fern Tree Pool, Cania Gorge NP, 24°43.685 S 150°58.330 E, 31-x-2005; 1/0/0, Alligator Creek, pool, upstream, Bowling Green Bay NP, 19°26.740 S 146°58.471 E, 79 m asl, 11-xi-2014; 2/3/0, Neurum Creek downstream of Rockhole, d'Aquilar NP, 27°02.804 S 152°41.516 E, 197 m asl, 30-xi-2014. **Northern Territory**. 2/1/0, Gubarra Creek upstream of pool, Kakadu NP, 12°49.605 S 132°52.708 E, 27-ix-2005; 0/1/0, Campbell Springs, 38 km E of Victoria River Roadhouse, Gregory NP, 15°29.749 S 131°23.328 E, 4-x-2005.

Remarks. See Smit 2004 p. 177.

Distribution. Queensland, Northern Territory.

Koenikea lemba Cook, 1986

Material examined. **New South Wales**. 1/2/0, unnamed creek at crossing with Wyndham-Candelo road, SE Forests NP, 11-xii-2003; 0/1/0, Mumbulla Creek at Mumbulla Creek Picnic Area, Biamanga NP, 36°34'32.92"S 149°53'37.93"E, 12-xii-2003; 0/1/0, Sugarloaf Creek at crossing with Misty Mountain Road, Monga NP, 35°33.738 S 150°00.715 E, 145 m asl, 15-xii-2003; 2/1/0, Never Never Creek, Tallywood Point, 30°21.624 S 152°54.269 E, 7-xi-2005; 2/2/0, Wattamolla Creek, Royal NP, 34°07.911 S 151°06.907 E, 29 m asl, 23-i-2024. **Queensland**. 2/2/0, Peter's Creek at crossing with road Kenilworth-Jimna, 26°40.911 S 152°36.577 E, 3-xi-2005; 4/4/0, Buaraba Creek, Ravensbourne NP, 4-xi-2005; 1/0/0, Logan River, Mt Barney NP, 28°16.816 S 152°44.125 E, 207 m asl, 22-xi-2014.

Distribution. Tasmania, New South Wales and Victoria. Reported here for the first time for Queensland.

Koenikea lewisensis Smit, 2004

Material examined. **Queensland**. 14/14/0, unnamed creek Mt Lewis, Julatten, 16°35.490 S 145°16.359 E, 980 m asl, 14-x-2005; 4/0/0, Bushy Creek, Mt Lewis, Julatten, 16°35.677 S 145°16.771 E, 985 m asl, 29-x-2014.

Distribution. Only known from Mt Lewis, Queensland.

***Koenikea piota* Cook, 1986**
Figures 1, 12A

Material examined. **Queensland**. 1/0/0, Oliver Creek, Daintree NP, 16°08.283 S 145°26.480 E, 15-x-2005, dissected and slide mounted (RMNH); 0/1/0, Broadwater Creek, Broadwater State Forest, 18°24.922 S 145°56.639 E, 52 m asl, 8-xi-2014, dissected and slide mounted (RMNH).

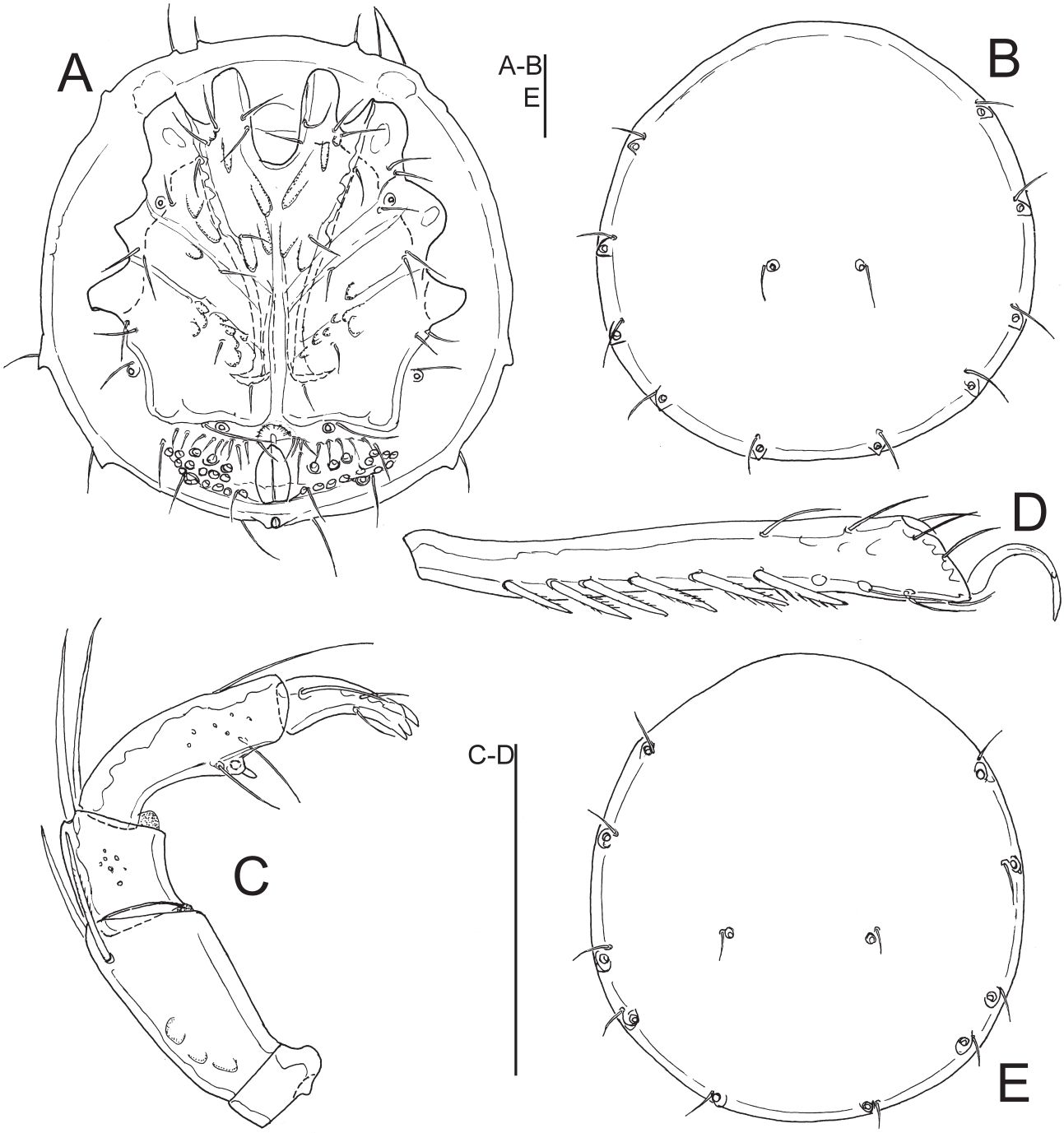

FIGURE 1. *Koenikea piota* Cook, 1986 (A-C—♂, Oliver Creek, Queensland; E—♀, Broadwater Creek, Queensland): A—idiosoma, ventral view (unmounted); B, E—dorsal shield (unmounted; C—palp (unmounted); D—IV-leg-6. Scale bars = 100 μm.

Remarks. Thus far, the male was unknown, and therefore a description is given below. The female from Broadwater Creek differs in Dgl-4 not as close as in Fig. 983 of Cook 1986, but idiosoma shape rounded and dorsal glandularia on small tubercles (Figure 1E) makes its assignment to *K. piota* likely. More material is needed to clarify the taxonomic status of this population.

Description. *Male*—Dorsal and ventral shields present; dorsal furrow complete; no apophyses on either the dorsal or ventral shields. Dorsal shield 531 long and 531 wide, with six pairs of glandularia: five pairs placed laterally on small tubercles and one pair located close together near the middle. Dorsal shield with a coloration as photographed in Figure 12A. Ventral shield with tubercles near lateral margin, 594 long and 569 wide; gnathosomal bay 112 long. Tips of first coxal plates more or less rounded, not extending beyond frontal margin. Apodemes of anterior coxae long, extending beyond suture line of third and fourth coxae. Coxoglandularia 2 located close to posterior margin of Cx-IV. Genital field subterminal, with approximately 19 pairs of acetabula (exact number difficult to ascertain), 281 wide; gonopore 67 long and 45 wide. A pair of glandularia partially surrounded by the acetabula at posterior margin of genital plates. Excretory pore terminal. Ejaculatory complex 126 long.

Palp as illustrated in Figure 1C: dorsal length/height: P1, 13/29; P2, 68/35; P3, 39/28; P4, 72/22; P5, 44/16; P4 peg-like seta located on a well-developed tubercle placed well proximal to the distal end of the segment. Gnathosoma ventrally (with anchoral process) 126 long, chelicera 126 long.

Dorsal lengths of I-leg: 52, 96, 114, 144, 142, 148; first and second leg with long grooved or fluted setae, these of I-leg-4 and -5 longer than half of the segment and greatly thickened; dorsal lengths of IV-leg-2-6: 94, 109, 144, 156, 175; II-leg-5 with two swimming setae; III-leg-3 with one, III-leg-4 and 5 each with three swimming setae; IV-leg-3 with two, IV-leg-4 and 5 each with three distoventral swimming setae.

Distribution. Queensland.

Koenikea pseudodistans Cook, 1986

Material examined. **Queensland**. 1/0/0, Lawn Hill Creek at campground, Lawn Hill NP, 18°42.011 S 138°29.235 E, 10-x-2005; 2/1/0, unnamed creek 7.6 km N of Archer River, Cape York Peninsula, 13°23.157 S 142°54.316 E, 103 m asl, 23-x-2014; 2/1/0, West Claudie River at crossing with Portland Road, Iron Range NP, 12°44.352 S 143°15.246 E, 64 m asl, 26-x-2014; 1/0/0, Spring Creek, N of Woolooga, 25°44.497 S 152°14.442 E, 111m asl, 18-xi-2014; 1/0/0, Takilberan Creek N of Gin Gin at crossing with Bruce Highway, 24°49.680 S 151°42.479 E, 85 m asl, 18-xi-2014. 0/1/0, Burster Creek, SE of Injinoo, Cape York Peninsula, 10°55.355 S 142°21.174 E, 3 m asl, 22-x-2014, dissected and slide mounted. **Northern Territory**. 1/3/0, Bitter Springs, Elsey NP, 14°54.760 S 133°05.386 E, 5-x-2005.

Distribution. Queensland, Northern Territory and Western Australia.

Koenikea rutala Cook, 1986

Figures 2, 12C

Material examined. 1/0/0 Stony Creek upstream Wallaman Falls, Girringun NP, 18°36.130 S 145°48.145 E, 549 m asl, 8-xi-2014, dissected and slide mounted (RMNH).

Remarks. In regard to the dorsal shield coloration (as illustrated in Figure 12C), dorsal glandularia 3 and 4 only slightly closer to each other on their respective sides than 5 and 6 are to each other (Figure 2B), the somewhat hooked projections near IV-leg insertions (Figure 2A) and nearly terminal position of genital field at the truncate posterior margin of the ventral shield (Figure 2A), the male from Stony Creek matches the description of *K. rutala*. The latter species was originally described by Cook (1986) based on a single male collected in Nigger Creek in Queensland. A difference is found in glandularia 3 and 4 closer to each other than 5 and 6 but almost equal in the original description of *K. rutala* (see fig. 989 in Cook 1986).

Distribution. Queensland

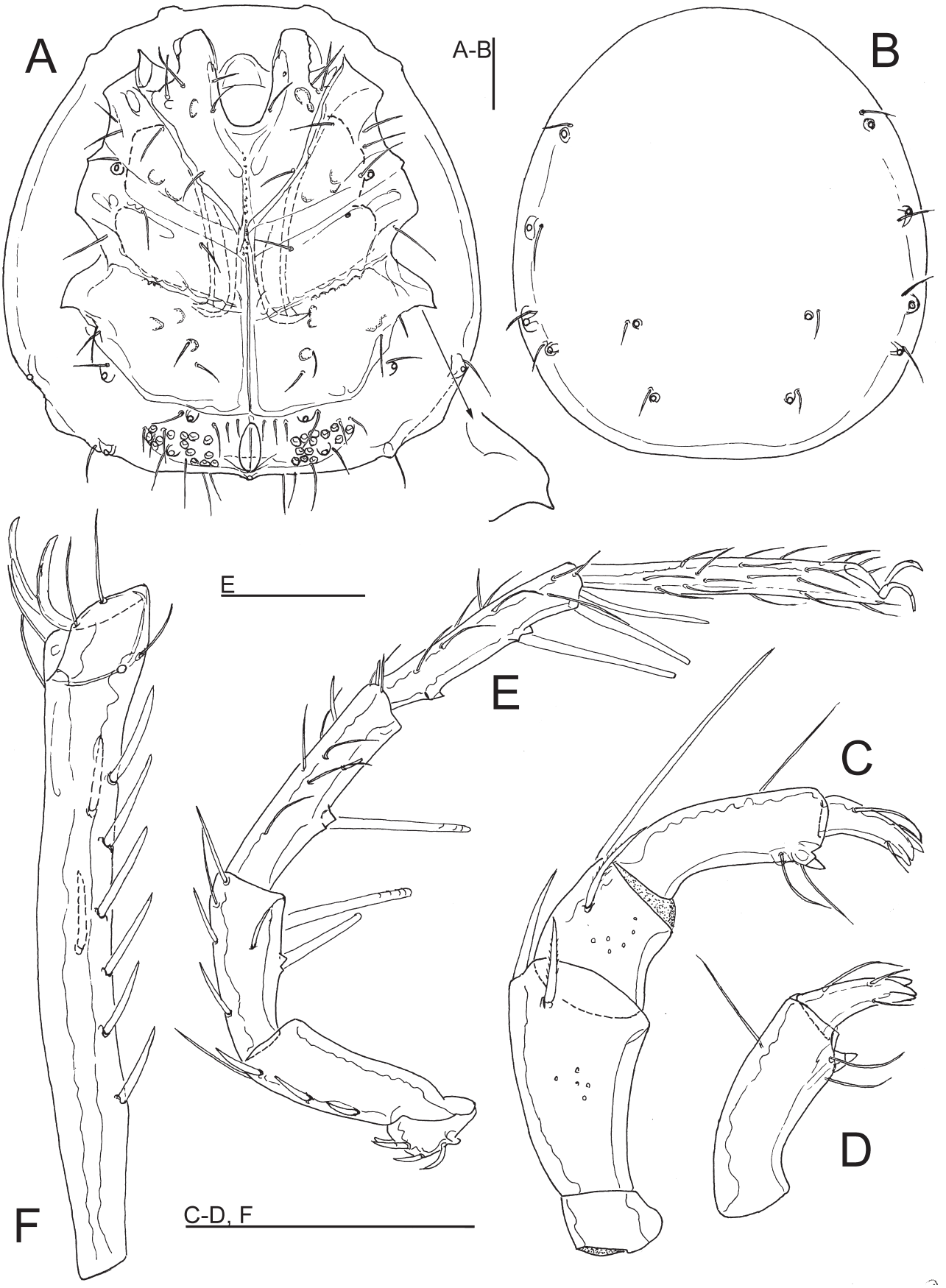

FIGURE 2. *Koenikea rutala* Cook, 1986, ♂, Stony Creek, Queensland: A—idiosoma, ventral view (unmounted; inset: projection near IV-leg insertion, enlarged 2x); B—dorsal shield; C—palp (unmounted); D—P4 (mounted); E—I-leg; F—IV-leg-6. Scale bars = 100 μm.

Koenikea saponaria Smit, 2007

Material examined. **Queensland**. 0/1/0, West Canungra Creek at Blue Pool, Lamington NP, 28°12'52.98"S 153°8'28.43"E, 15-xi-2003.

Remarks. The species has been described from the hyporheic of the West Canungra Creek. The species has a characteristic slender P5, not mentioned by Smit (2007).

Distribution. Queensland, only known from the West Canungra Creek.

Koenikea timmsi K.O. Viets, 1977

Figure 3

Material examined. **Queensland**. 2/10/0, Pandanus Creek, Cathu State Forest, 20°47.904 S 148°32.658 E, 24-x-2005; 0/1/0, Little Yabba Creek at Charlie Moreland Campground, Kenilworth, 26°36.928 S 152°39.105 E, 107 m asl, 2-xi-2005; 1/1/0, Elliot Creek at Fruit Bat Falls, Cape York Peninsula, 11°26.370 S 142°26.086 E, 72 m asl, 19-x-2014, dissected and slide mounted (RMNH). **Northern Territory**. 0/1/0, Manton Dam, 12°51.726 S 131°07.148 E, 24-ix-2005; 0/8/0, pools Waterfall Creek, upstream of falls, Kakadu NP, 13°25.762 S 132°25.089 E, 143 m asl, 1-x-2005; 0/4/0, Umbrawarra Gorge, Umbrawarra Gorge Nature Park, 13°57.892 S 131°41.620 E, 1-x-2005; 0/7/0, Copperfield Dam, Pine Creek, 13°50.719 S 131°49.095 E, 212 m asl, 2-x-2005; 1/0/0, Alligator Creek, pool, upstream, Bowling Green Bay NP, 19°26.740 S 146°58.471 E, 79 m asl, 11-xi-2014, dissected and slide mounted (RMNH); 0/4/0, Ferny Gully, Kakadu NP, 13°33.810 S 132°17.563 E, 1-x-2005.

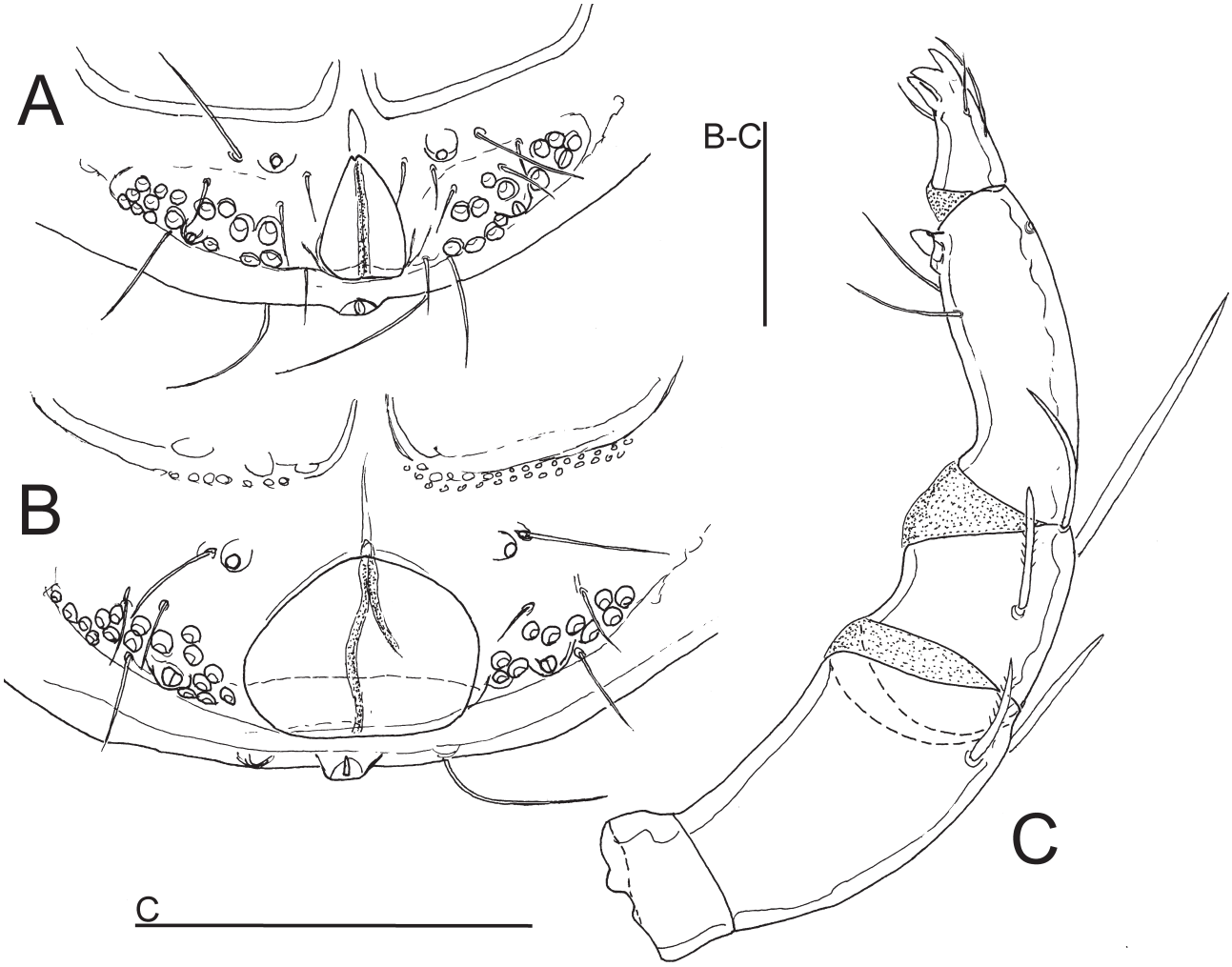

FIGURE 3. *Koenikea timmsi* K.O. Viets, 1977 **(**A male; B-C female), Elliot Creek, Queensland: A-B—genital field (unmounted); C—palp (unmounted). Scale bars = 100 μm.

Remarks. In the slide mounted specimens (illustrated in Figures 3A-B) from Elliot Creek Cxgl-2 are located between the posterior margin of fourth coxal plates and genital plates. The tubercle of the peg-like seta of P-4 is located near the distal end of the segment (Figure 3C), and the dorsal shield is lacking peculiar coloration (Figure 12B). The most posterior of the four laterally located dorsoglandularia are located close to the margin of dorsal shield. The most posterior of the latter dorsoglandularia has a noticeably enlarged dorsal opening which is diagnostic for *K. timmsi*.

Distribution. Queensland, Northern Territory and Western Australia.

Description of new taxa

Koenikea yorkensis sp. nov.

Figs. 4–5, 12D–E

Material examined. Male holotype (QM), **Queensland**, Jardine River, Cape York Peninsula, 11°09.070 S 142°21.335 E, 7 m asl, 22-x-2014, dissected and slide mounted. Paratype: 0/1/0, same data as the holotype, dissected and slide mounted (QM).

Diagnosis. Dorsal shield with a peculiar coloration; Dgl-3 and Dgl-4 located very close to the lateral margin of the dorsal shield; apodemes of anterior coxae extending nearly to the middle of fourth coxal plates; tubercle of P4 placed slightly proximally to distal end of the segment.

Description. Male. Dorsal and ventral shields present; dorsal furrow complete; no apophyses on either the dorsal or ventral shields. Dorsal shield 606 long and 550 wide, with six pairs of dorsoglandularia. One pair of glandularia situated more medially and five pairs of dorsoglandularia located near the margin of the dorsal shield, two of these glandularia (Dgl-3 and Dgl-4) shifted more closely to the lateral margin of the dorsal shield as illustrated in Figure 4B. Dorsal shield with a peculiar coloration, as photographed in Figures 12D-E. Ventral shield 625 long and 600 wide. Tips of first coxal plates more or less rounded, not extending beyond frontal margin. Apodemes of anterior coxae long, extending nearly to the middle of fourth coxal plates. Coxoglandularia 2 located between posterior margin of Cx-IV and genital plate, but closer to genital plate (Figure 4C). Genital field subterminal, 272 wide between most lateral pair of acetabula, gonopore 63 long and 34 wide; genital field with one large glandularium surrounded by approximately 23–25 small acetabula (exact number difficult to ascertain). Excretory pore terminal. Ejaculatory complex 122 long.

Palp as illustrated in Figure 4D: dorsal length/height: P1, 22/36; P2, 77/42; P3, 47/34; P4, 61/25; P5, 34/17; P4 peg-like seta located on a well-developed tubercle placed slightly posterior to the distal end of the segment. Gnathosoma (with anchoral process) ventrally 128 long.

Dorsal lengths of I-leg: 53, 106, 119, 147, 141, 177; first and second leg with long grooved or fluted setae, these of I-leg-4 and -5 longer than half of the segment (Figure 4E); dorsal lengths of IV-leg-2-6: 103, 104, 149, 159, 181. II-leg-5 with two swimming setae, III-leg-4 and 5 each with three swimming setae; IV-leg-3 with one, IV-leg-4 and 5 each with three distoventral swimming setae.

Female. Similar to male, except in the shape of the genital field (Figure 5). Dorsal shield 738 long and 600 wide; ventral shield 738 long and 681 wide; gnathosomal bay 98 long. Gonopore 69 wide; 322 wide between most lateral pair of acetabula.

Palp as in male; dorsal length/height: P1, 20/33; P2, 77/44; P3, 44/38; P4, 66/25; P5, 37/12. Gnathosoma (without anchoral process) ventrally 63 long; chelicera 125 long, claw 50 long. Dorsal lengths of I-leg: 61, 115, 125, 154, 134, 150; dorsal lengths of IV-leg: 80, 106, 134, 169, 188, 197; swimming setae setation as in male.

Etymology. Named for its occurrence in Cape York Peninsula.

Remarks. The new species resembles *Koenikea timmsi* K.O. Viets, 1977 but clearly differs in characteristic colour pattern (compare Figure 12D-E and Figure 12B), apodemes of anterior coxae reaching middle of the fourth coxal plates and P4 ventral tubercle shifted more proximally from the distal end of the segment (compare figures 4D and 3C).

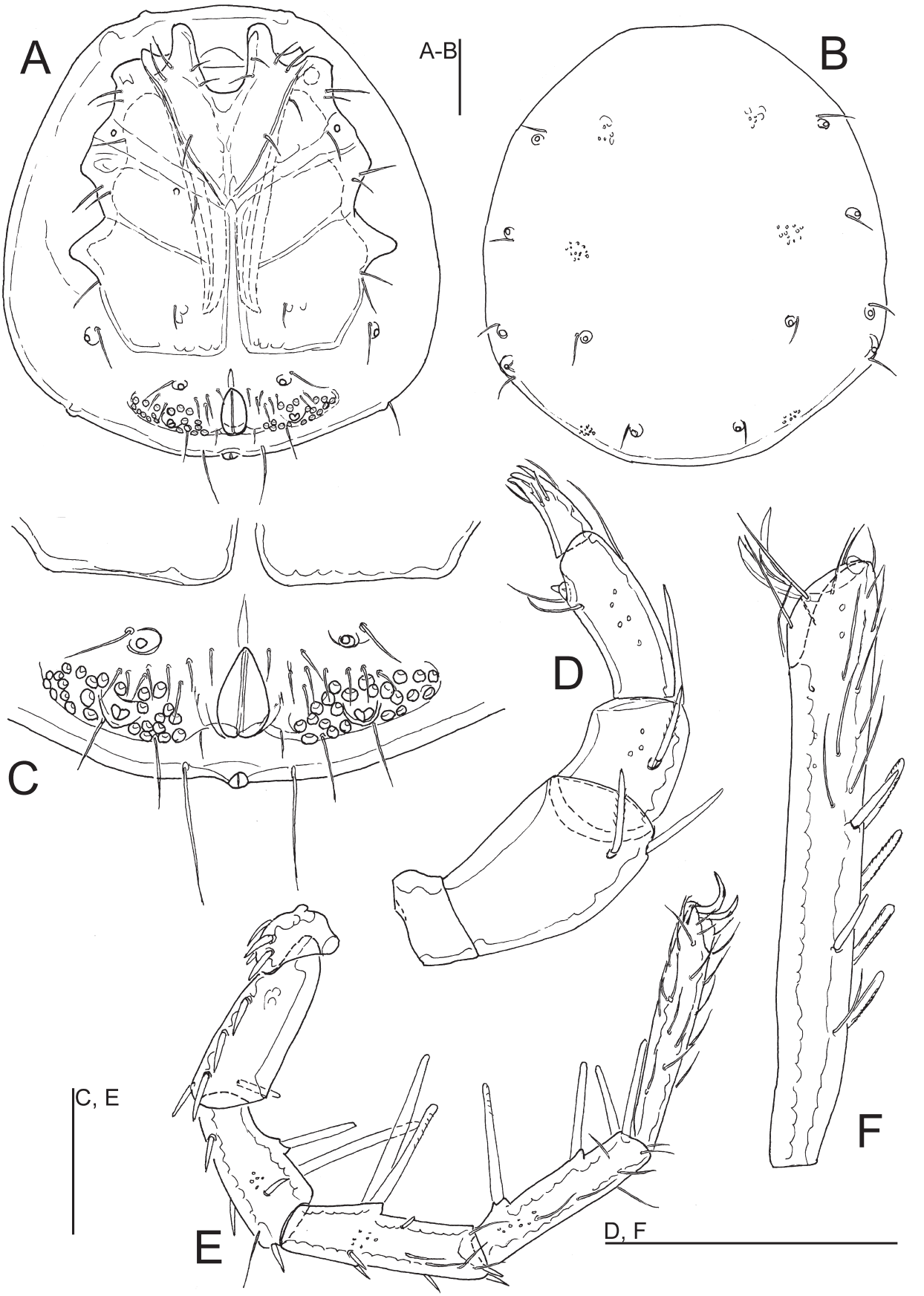

FIGURE 4. *Koenikea yorkensis* **sp. nov.**, ♂ holotype, Jardine River, Queensland: A—idiosoma, ventral view (unmounted); B—dorsal shield; C—genital field (unmounted); D—palp; E—I-leg (some of grooved or fluted setae lost); F—IV-leg-6. Scale bars = 100 μm.

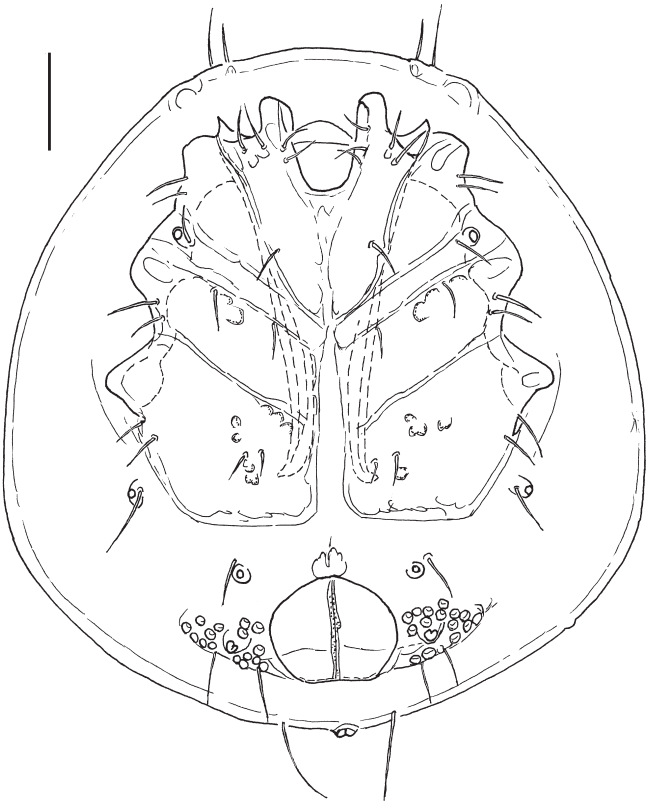

FIGURE 5. *Koenikea yorkensis* **sp. nov.**, ♀ paratype, ♂, Jardine River, Queensland: idiosoma, ventral view (unmounted). Scale bar = 100 μm.

***Koenikea brachypalpis* sp. nov.**
Figs. 6, 12G

Material examined. Male holotype (NTM), **Northern Territory**, Walker Creek, Litchfield NP, 13°04.694 S 130°41.929 E, 161 m asl, 25-ix-2005, dissected and slide mounted.

Diagnosis. Dorsal shield with a peculiar coloration; posterior margin of fourth coxae reversed heart-shaped, reaching anterior margin of gonopore; palpal segments stocky, tubercle of P4 placed slightly proximally to distal end of the segment.

Description. Male. Dorsal and ventral shields present; dorsal furrow complete; no apophyses on either the dorsal or ventral shields. Dorsal shield 419 long and 363 wide, with six pairs of glandularia on tubercles. Dgl-3 and Dgl-4 located approximately the same distance from lateral margin of dorsal shield. Dorsal shield with a peculiar coloration, as photographed in Figure 12G. Ventral shield 441 long and 395 wide; gnathosomal bay 93 long. Tips of first coxal plates more or less rounded, not extending beyond frontal margin of ventral shield. Apodemes of anterior coxae long, extending beyond suture line of third and fourth coxae. Posterior margin of fourth coxae reversed heart-shaped, reaching anterior margin of gonopore. Coxoglandularia 2 located near posterior margin of Cx-IV (Figure 6A). Genital field with one large glandularium surrounded by approximately 13-15 small acetabula (exact number difficult to ascertain), 225 wide between most lateral pair of acetabula, gonopore 42 long and 23 wide. Excretory pore terminal.

Palp as illustrated in Figure 6C: dorsal length/height: P1, 16/28; P2, 72/48; P3, 34/38; P4, 60/25; P5, 33/15; palpal segments stocky, P4 peg-like seta located on a well-developed tubercle placed slightly posterior to the distal end of the segment. Gnathosoma (with anchoral process) 95 long; basal segment of chelicera 95 long.

Dorsal lengths of I-leg: 84, 94, 94, 128, 108, 134; first and second leg with long grooved or fluted setae, these of I-leg-4 and -5 longer than half of the segment (Figure 6D); dorsal lengths of IV-leg-2-6: 92, 116, 147, 161, 179. II-leg-5 with one swimming seta; III-leg-4 and 5 each with three swimming setae; IV-leg-3 with one, IV-leg-4 and 5 each with three distoventral swimming setae.

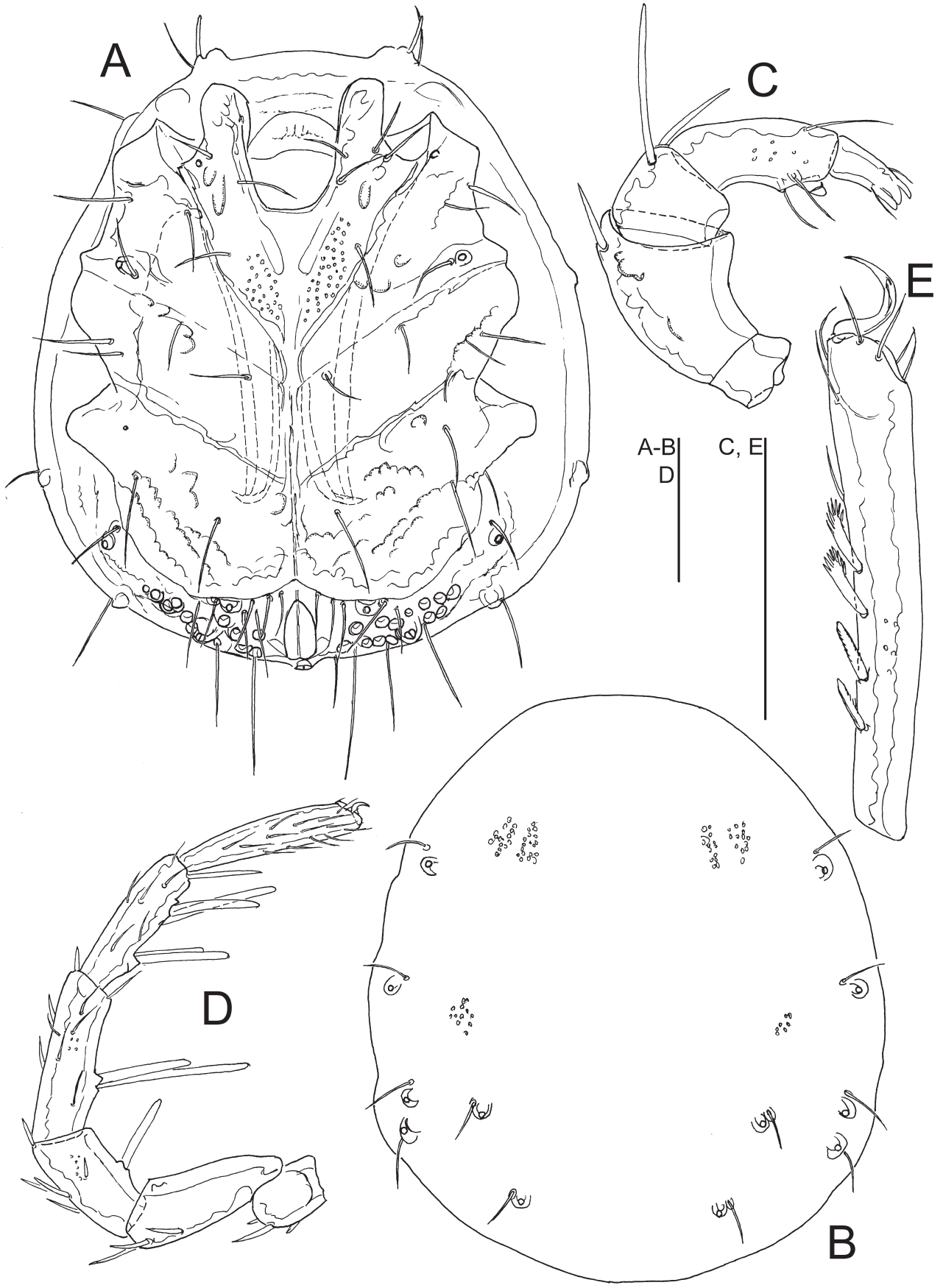

FIGURE 6. *Koenikea brachypalpis* **sp. nov.**, ♂ holotype, ♂, Walker Creek, Northern Territory: A—idiosoma, ventral view (unmounted); B—dorsal shield; C—palp; D—I-leg (some of grooved or fluted setae lost); E—IV-leg-6. Scale bars = 100 μm.

Etymology. Named for its stocky palp (Greek *brachys* = short)

Remarks. The new species can be separated from all other species in peculiar dorsal coloration, the posterior margin of fourth coxae reversed heart-shaped, reaching anterior margin of gonopore and stout palpal segments, especially P4.

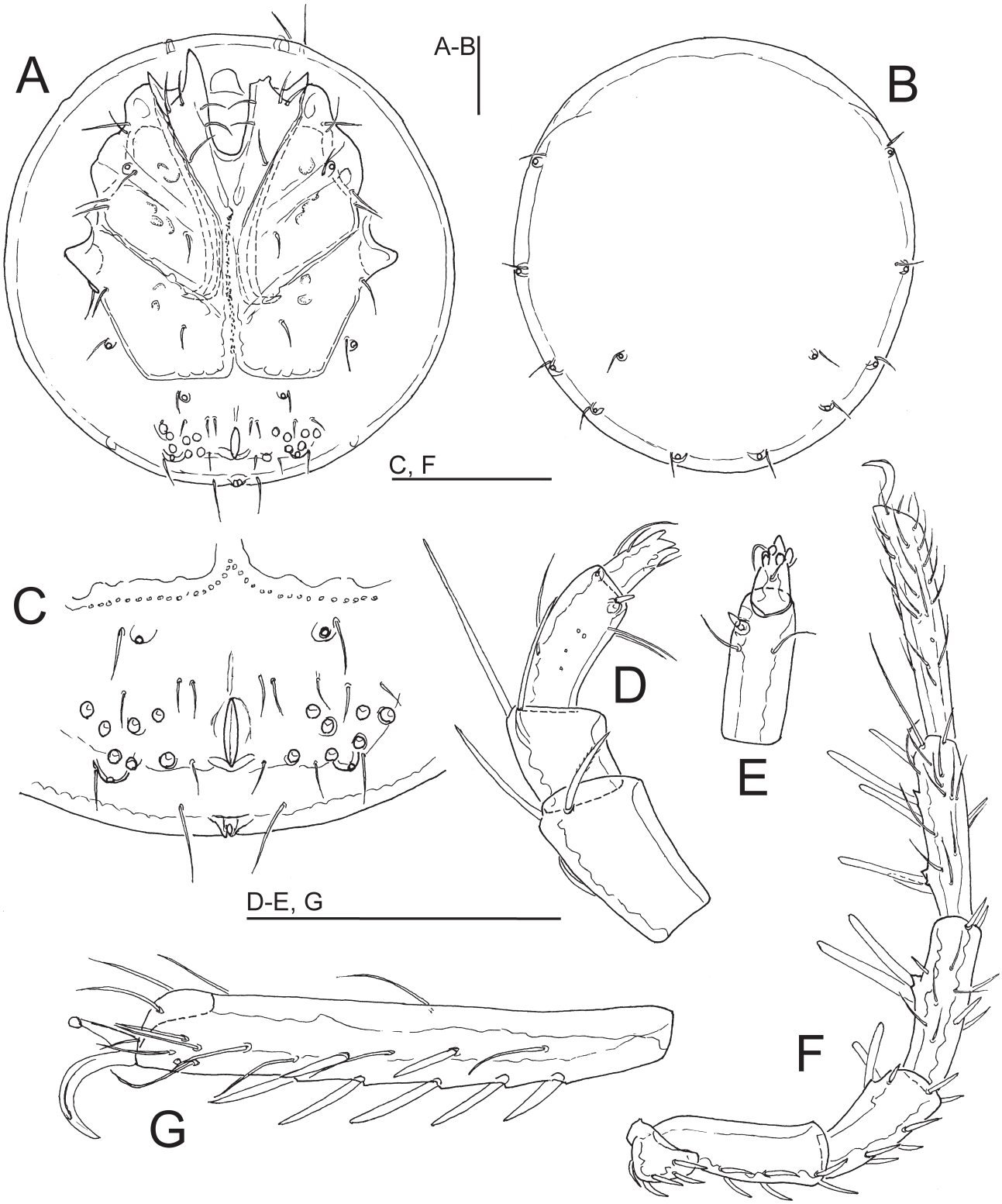

FIGURE 7. *Koenikea interstitialis* **sp. nov.**, ♂ holotype, Dalrymple Creek, Queensland: A—idiosoma, ventral view (unmounted); B—dorsal shield; C—genital field (unmounted); D—palp (unmounted); E—P4; F—I-leg; G—IV-leg-6. Scale bars = 100 μm.

***Koenikea interstitialis* sp. nov.**
Figs. 7, 12F

Material examined. Male holotype (QM), **Queensland,** Dalrymple Creek, hyporheic, at Kurrajong Picnic Area, Main Range NP, 27°58.700 S 152°20.479 E, 704 m asl, 22-xi-2014, dissected and slide mounted; Paratype male, same date and location as holotype (RMNH).

Diagnosis. Dgl-4 much more separated from Dgl-3; tips of first coxal plates pointed; gonopore slit-like, P4 peg-like seta inserted directly on the segment near distal end.

Description. Male. Dorsal and ventral shields present; dorsal furrow complete; no apophyses on either the dorsal or ventral shields: small eye pigment present. Dorsal shield 556 long and 511 wide, dome-shaped with six pairs of dorsoglandularia as illustrated in Figure 7B. Dorsal shield without a peculiar coloration (Figure 12F). Ventral shield 575 long and 575 wide. Tips of first coxal plates pointed, reaching nearly frontal margin of ventral shield (Figure 7A). Apodemes of anterior coxae extending just beyond the suture line of third and fourth coxae. Posterior margin of Cx-IV straight. Coxoglandularia 2 located halfway between posterior margin of Cx-IV and genital plates. Genital field subterminal, with approximately seven pairs of acetabula, 200 wide between most lateral pair of acetabula, gonopore slit-like (Figure 7C), 44 long and 9 wide. A relatively large pair of glandularia located at posterior margin of genital field. Excretory pore terminal. Ejaculatory complex 110 long.

Palp as illustrated in Figures 7D-E: dorsal length/height: P1, 19/23; P2, 58/34; P3, 36/28; P4, 52/20; P5, 25/12; P4 peg-like seta inserted directly on the segment near distal end. Gnathosoma (with anchoral process) ventrally 109 long, chelicera 130 long.

Dorsal lengths of I-leg: 45, 92, 88, 117, 125, 169; first and second leg with long grooved or fluted setae, these of I-leg-4 and -5 longer than half of the segment (Figure 7F); dorsal lengths of IV-leg: 58, 100, 106, 142, 152, 164; II-leg-5 with one swimming setae, III-leg-4 and 5 each with two swimming setae; IV-leg-4 and 5 each with four swimming setae.

Etymology. Named for its occurrence in interstitial habitat.

Remarks. Very much like *Koenikea saponaria* (like dorsal shield very convex) but gonopore not bulging, slit-like, tips of Cx-I pointed, Dgl-4 much more separated from Dgl-3 and pair of Dgl-6 closer to each other.

***Koenikea inconspicua* sp. nov.**
Figs. 8, 12H

Material examined. Female holotype (NTM), **Northern Territory**, Ferny Gully, Kakadu NP, 13°33.810 S 132°17.563 E, 1-x-2005, dissected and slide mounted. Paratypes: 0/2/0 (one female RMNH), Moline Bottom Rockhole, Kakadu NP, 13°34.418 S 132°15.290 E, 175 m asl, 1-x-2005, 0/1/0 dissected and slide mounted (NTM).

Diagnosis. Dgl-4 closer to Dgl-3 than to lateral margin, Dgl-4 located posterior to Dgl-3; palpal segments stocky, especially P4, seta of P4 not on a tubercle.

Description. Female. Dorsal and ventral shields present; dorsal furrow complete; no apophyses on either the dorsal or ventral shields. Dorsal shield 440 long and 388 wide, with six pairs of dorsoglandularia as illustrated in Figure 8B. Dorsal shield without a peculiar coloration (Figure 12H). Ventral shield 522 long and 447 wide; gnathosomal bay 101 long. Tips of first coxal plates more or less rounded, not extending beyond frontal margin of ventral shield. Apodemes of anterior coxae long, extending beyond suture line of third and fourth coxae. Coxoglandularia 2 located between posterior margin of Cx-IV and genital plates. Genital field subterminal, 266 wide between most lateral pair of acetabula, gonopore 81 long and 106 wide; genital field with one large glandularium surrounded by approximately 18 small acetabula (exact number difficult to ascertain). Excretory pore terminal. Egg (n = 1) maximum diameter 122.

Palp as illustrated in Figures 8C–D: dorsal length/height: P1, 16/33; P2, 73/48; P3, 38/37; P4, 61/28; P5, 33/17; P4 peg-like seta inserted directly on the segment, before distal end. Gnathosoma (with anchoral process) ventrally 91 long; chelicera 125 long.

Dorsal lengths of I-leg-2–6: 84, 94, 119, 106, 114; first and second leg with long grooved or fluted setae, these of I-leg-4 and -5 longer than half of the segment (Figure 8E); dorsal lengths of IV-leg-3–6: 113, 141, 153, 158. II-leg-4 with one swimming setae, II-leg-5 with two swimming setae; III-leg-4 and 5 each with three swimming setae; IV-leg-3 with one, IV-leg-4 and 5 each with three distoventral swimming setae.

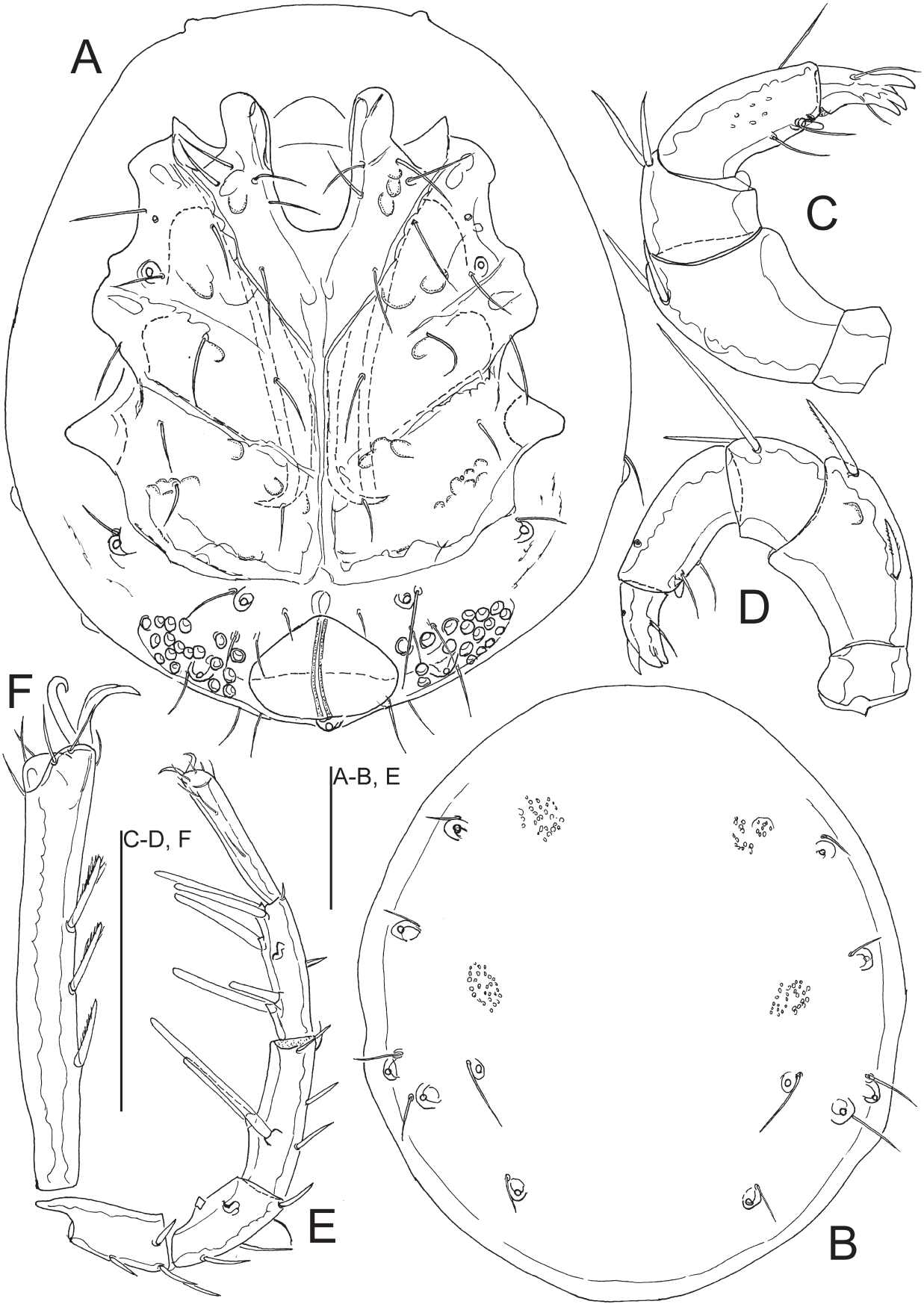

FIGURE 8. *Koenikea inconspicua* **sp. nov.** ♀ (A-B, E-F—holotype, Ferny Gully, Northern Territory; D—paratype, Moline Bottom Rockhole, Northern Territory): A—idiosoma, ventral view (unmounted); B—dorsal shield; C-D—palp; E—I-leg-2-6; F—IV-leg-6. Scale bars = 100 μm.

Etymology. Apart from the palp, with the seta of P4 not on a tubercle, the new species has no prominent characteristics (*inconspicuus* = not prominent).

Remarks. The new species resembles *Koenikea jacunda* Cook, 1986. From the latter species the new species differs in Dgl-4 shifted posterior to Dgl-3 (in *K. jacunda* all three glandularia pairs, Dgl-3, -4 and 5 are in a line; see fig. 1020 in Cook 1986), and in somehow more stockier palps, especially P-4.

Smit (2004) stated that his specimens from Baboalba springs preliminary assigned to *K. jacunda* differs from holotype of the latter species in having stockier palps and a smaller size.

***Koenikea caniaensis* sp. nov.**

Figs. 9–10, 12I

Material examined. Male holotype (QM), Queensland, Fern Tree Pool, Cania Gorge NP, 24°43.685 S 150°58.330 E, 31-x-2005, dissected and slide mounted. Paratypes: 0/1/0, same data as the holotype, dissected and slide mounted (QM); 2/6/0, Queensland, pool at The Overhang, Cania Gorge NP, 31-x-2005 (1/3/0 QM, 1/3/0 RMNH).

Diagnosis. Dorsal shield with five pairs of dorsoglandularia on large tubercles, Dgl-3 and Dgl-4 closer to each other than the other glandularia; dorsal shield with a coloration; posterior margin of Cx-IV reversed wide U-shaped; P4 peg-like seta located on a well-developed tubercle; I-leg-6 > 150 µm.

Description. Dorsal and ventral shields present; dorsal furrow complete; no apophyses on either the dorsal or ventral shields. Dorsal shield 506 long and 447 wide, with five pairs of dorsoglandularia on large tubercles as illustrated in Figure 9B. Dorsal shield with a coloration as photographed in Figure 12I. Ventral shield with tubercles near lateral margin, 575 long and 546 wide; gnathosomal bay 115 long. Tips of first coxal plates more or less rounded, not extending beyond frontal margin. Apodemes of anterior coxae long, extending beyond suture line of third and fourth coxae. Posterior margin of Cx-IV reversed wide U-shaped. Coxoglandularia 2 located close to posterior margin of Cx-IV. Genital field subterminal, with approximately 18–20 pairs of acetabula (exact number difficult to ascertain), 238 wide between most lateral pair of acetabula, gonopore 72 long and 28 wide; glandularia tubercle well posterior to genital field. Excretory pore terminal. Ejaculatory complex 131 long.

Palp as illustrated in Figure 9C: dorsal length/height: P1, 19/32; P2, 72/40; P3, 40/32; P4, 70/24; P5, 34/15; P4 peg-like seta located on a well-developed tubercle placed slightly posterior to the distal end of the segment. Gnathosoma (with anchoral process) ventrally 118 long.

Dorsal lengths of I-leg-2-6: 107, 108, 145, 148, 183; first and second leg with long grooved or fluted setae, these of I-leg-4 and -5 longer than half of the segment (Figure 9D); dorsal lengths of IV-leg: 72, 101, 120, 156, 158, 167. II-leg-5 with two swimming setae; III-leg-3 with one, III-leg-4 and 5 each with three swimming setae; IV-leg-3 with one, IV -leg-4 and 5 each with three distoventral swimming setae.

Female. Similar to male, except in the shape of the genital field (Figure 10A). Dorsal shield 609 long and 491 wide; ventral shield 663 long and 606 wide; gnathosomal bay 128 long. Gonopore long 56 and 59 wide; 289 wide between most lateral pair of acetabula.

Palp (Figure 10B) as in male; dorsal length/height: P1, 22/34; P2, 77/40; P3, 47/34; P4, 79/26; P5, 46/19. Gnathosoma (without anchoral process) ventrally 92 long. Dorsal lengths of I-leg-2-6: 122, 128, 161, 159, 176; dorsal lengths of IV-leg-2-6: 106, 128, 177, 180, 188; swimming setae setation as in male.

Etymology. Named for Cania NP, where the new species has been collected.

Remarks. The new species resembles *Koenikea australica* in the presence of five pairs of dorsoglandularia of the dorsal shield and the peg-like seta of P4 located on a tubercle. From the latter species, the new species clearly differs in coloration of the dorsal shield (in *K. australica* colour pattern consisting of a large central bluish patch and lateral brownish areas), a different arrangement of dorsal glandularia (in *australica* glandularia placed relatively far from each other, one of the glandularia located close to lateral margin on a very large tubercle), and posterior margin of Cx-IV reversed wide U-shaped.

Koenikea lewisensis Smit, 2004 differs in much shorter leg segments (I-leg-6 < 150 µm) and a rather short ventral tubercle on P4 (see Smit 2004).

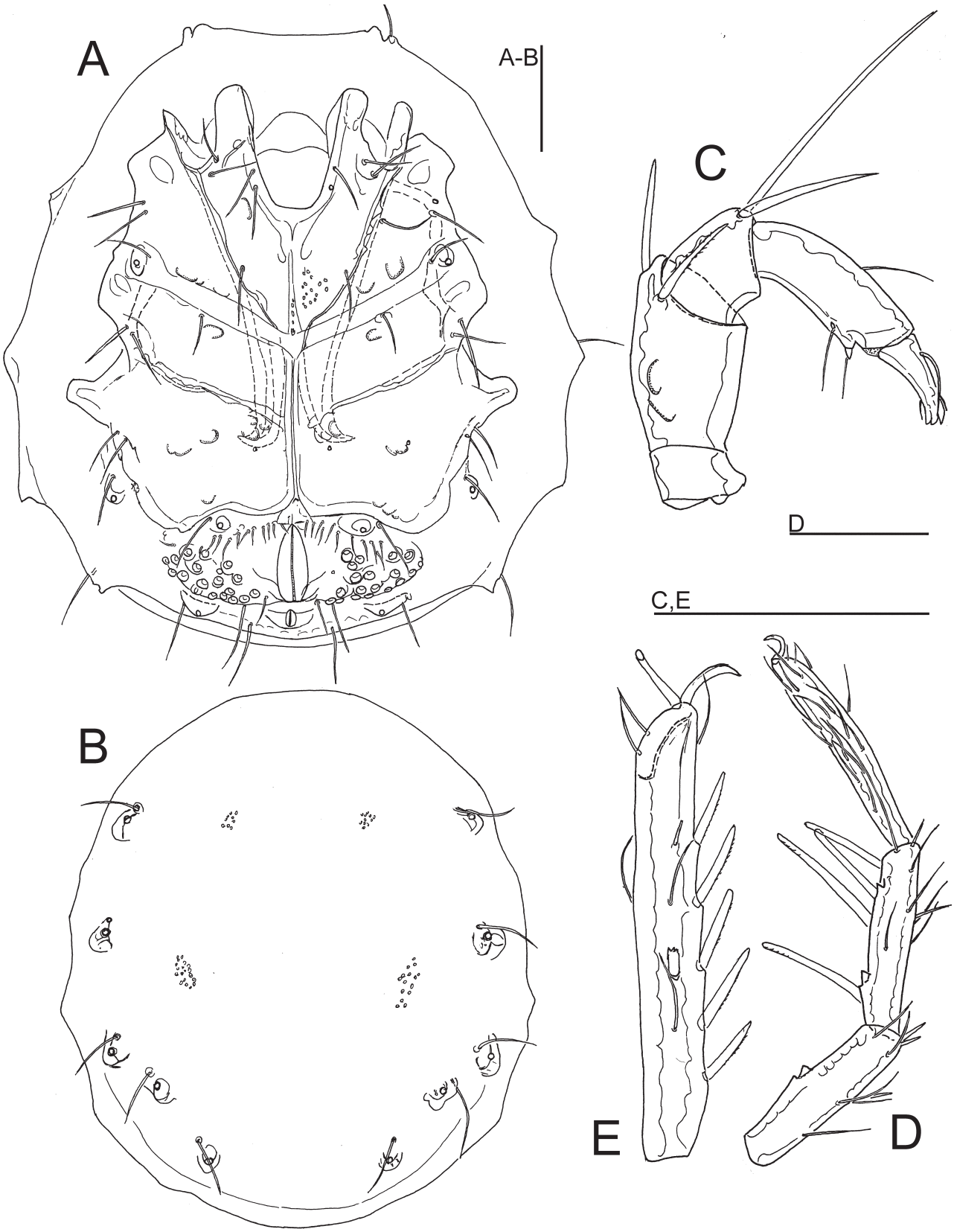

FIGURE 9. *Koenikea caniaensis* **sp. nov.**, ♂ holotype, Fern Tree Pool, Queensland: A—idiosoma, ventral view (unmounted); B—dorsal shield; C—palp (unmounted); D—I-leg-4-6 (some of grooved or fluted setae lost); E—IV-leg-6. Scale bars = 100 μm.

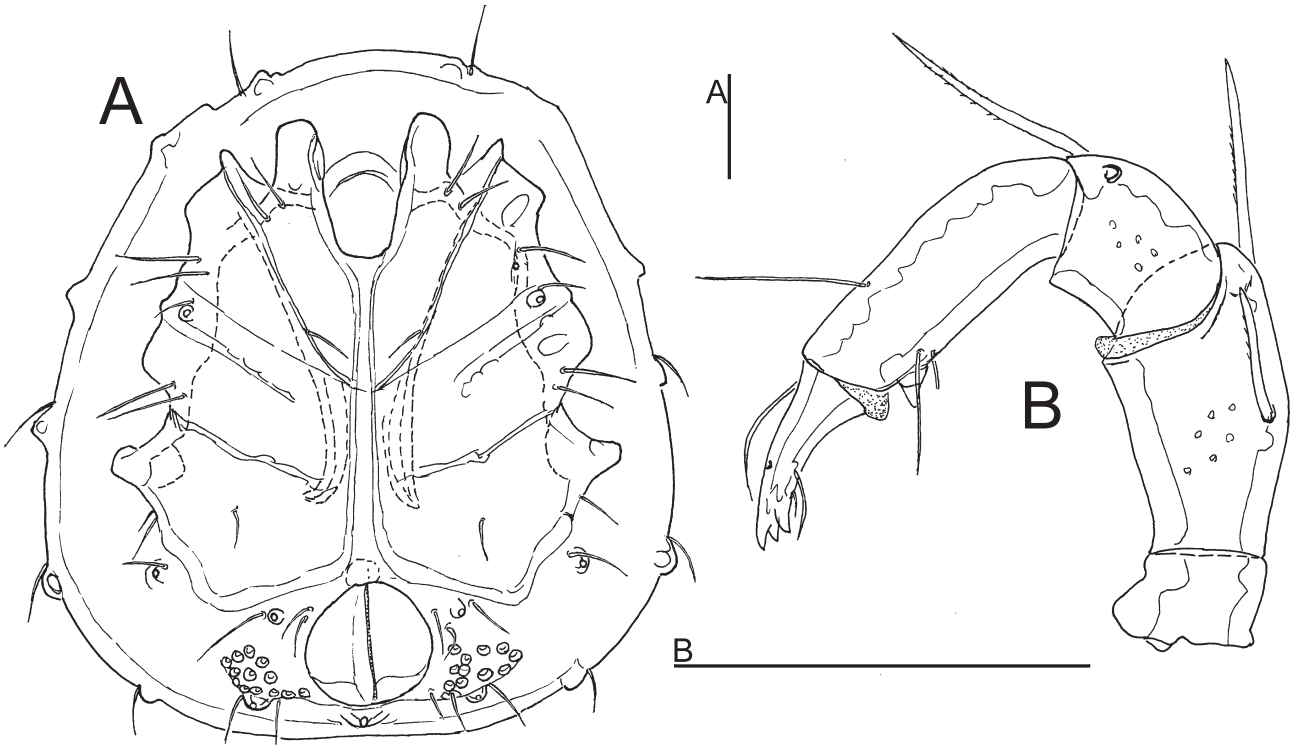

FIGURE 10. *Koenikea caniaensis* **sp. nov.**, ♀ paratype, Fern Tree Pool, Queensland: A—idiosoma, ventral view (unmounted); B—palp (unmounted). Scale bars = 100 μm.

***Koenikea tuberculata* sp. nov.**
Figs. 11

Material examined. Male holotype (NTM), **Northern Territory**, Walker Creek, Litchfield NP, 13°04.694 S 130°41.929 E, 161 m asl, 25-ix-2005, dissected and slide mounted.

Diagnosis. Dorsal shield with five pairs of dorsoglandularia; dorsal shield without a peculiar coloration; posterior margin of Cx-IV oblique; genital plates tapering; excretory pore on an extension; P4 peg-like seta located on a well-developed tubercle; I-leg-6 < 150 μm.

Description. Male. Dorsal and ventral shields present; dorsal furrow complete; no apophyses on either the dorsal or ventral shields. Dorsal shield 397 long and 400 wide, with five pairs of dorsoglandularia as illustrated in Figure 11B. Dorsal shield without a peculiar coloration. Ventral shield with tubercles near lateral margin, 469 long and 472 wide; gnathosomal bay 106 long. Tips of first coxal plates more or less rounded, not extending beyond frontal margin. Apodemes of anterior coxae long, extending beyond suture line of third and fourth coxae. Posterior margin of Cx-IV oblique. Coxoglandularia 2 located between close to posterior margin of Cx-IV. Genital field subterminal, with approximately 17–18 pairs of acetabula (exact number difficult to ascertain), 235 wide between most lateral pair of acetabula, genital plates tapering, gonopore 59 long and 19 wide; glandularia tubercle well posterior to genital field. Excretory pore terminal, on an extension. Ejaculatory complex long 106.

Palp as illustrated in Figures 11C-D: dorsal length/height: P1, 14/23; P2, 89/27; P3, 30/23; P4, 58/19; P5, 30/13; P4 peg-like seta located on a well-developed tubercle placed slightly posterior to the distal end of the segment. Gnathosoma (without anchoral process) ventrally 196 long; chelicera 95 long, claw 38 long.

Dorsal lengths of I-leg-4-6: 109, 118, 144; first and second leg with long grooved or fluted setae, these of I-leg-4 and -5 longer than half of the segment (Figure 11E); dorsal lengths of IV-leg-2-6: 74, 84, 125, 123, 122. II-leg-4 with one swimming setae, II-leg-5 with two swimming setae; III-leg-4 and 5 each with three swimming setae; IV-leg-3 with one, IV-leg-4 and 5 each with three distoventral swimming setae.

Etymology. Named after the prominent setal tubercle of P-4.

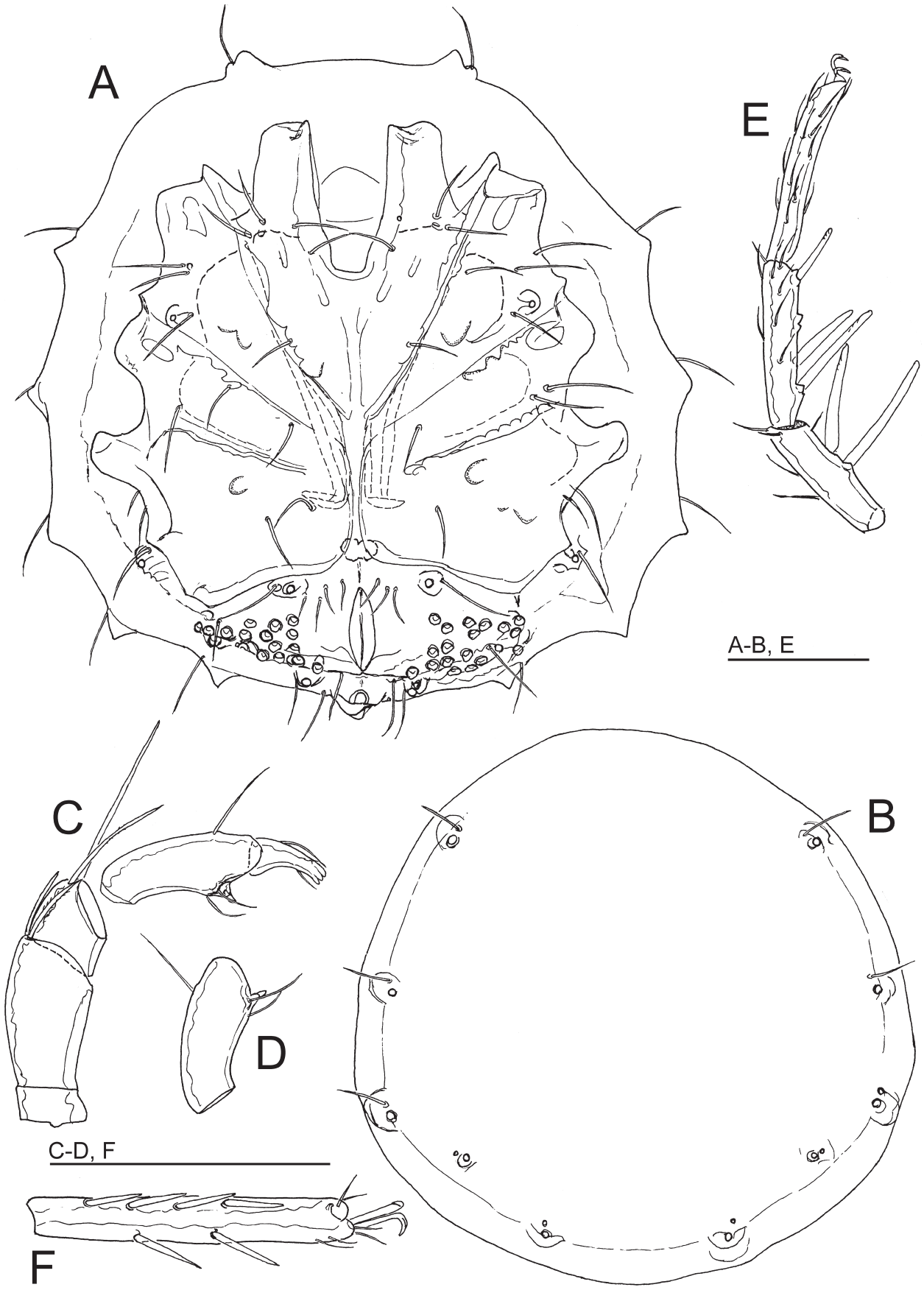

FIGURE 11. *Koenikea tuberculata* **sp. nov.**, ♂ holotype, Walker Creek, Northern Territory: A—idiosoma, ventral view (unmounted); B—dorsal shield; C—palp (unmounted); D—P4 (mounted); E—I-leg-4-6 (some of grooved or fluted setae lost); F—IV-leg-6. Scale bars = 100 μm.

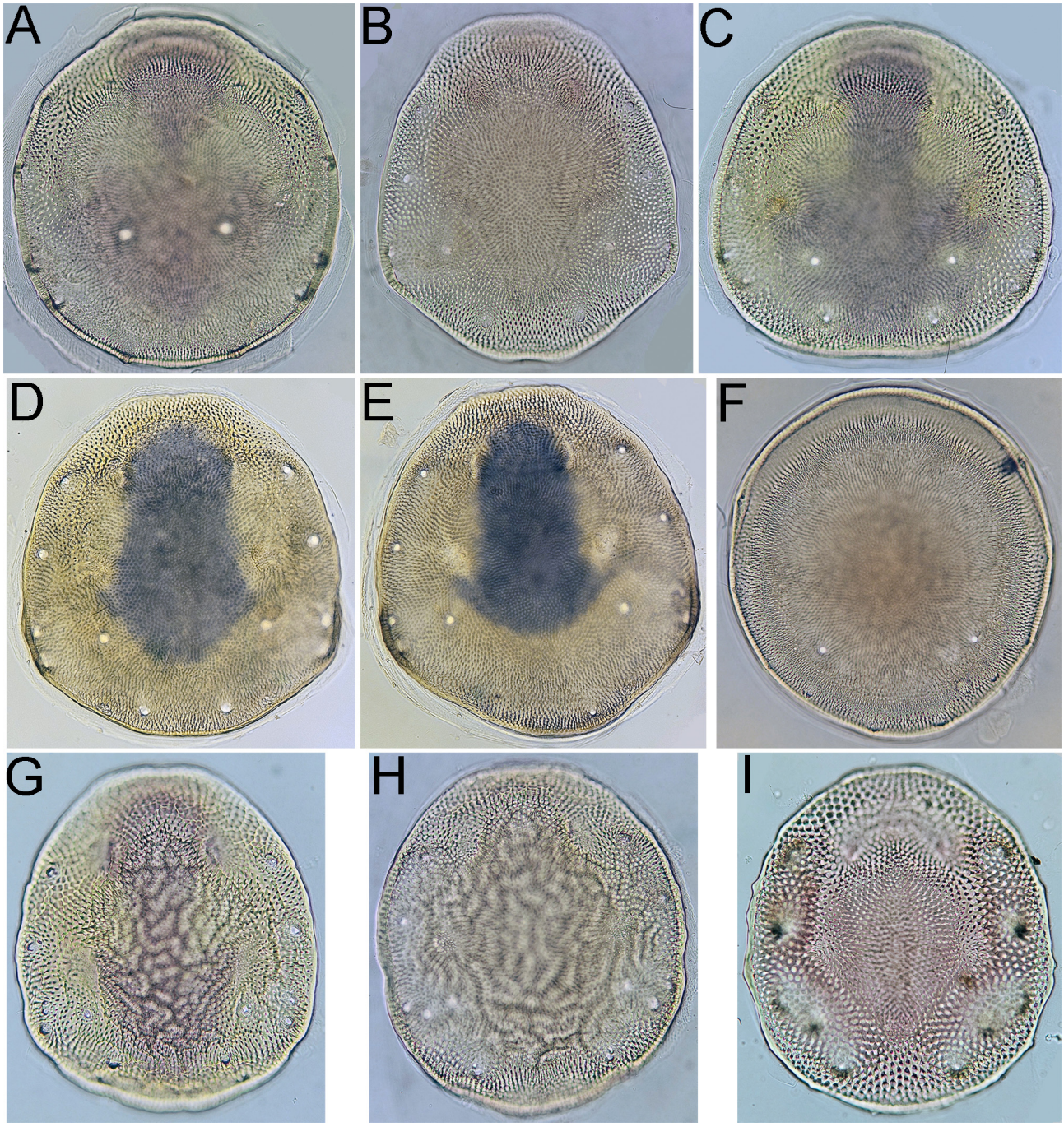

FIGURE 12. Photographs of dorsal shield (photographed immediately after dissection). **A**—*Koenikea piota* Cook, 1986, ♂, Oliver Creek, Queensland; **B**—*K. timmsi* K.O. Viets, 1977, ♂, Alligator Creek, Northern Territory; **C—***K. rutala* Cook, 1986, ♂, Stony Creek, Queensland**; D-E** *K. yorkensis* **sp. nov.**, Jardine River, Queensland: D—♂ holotype, E—♀ paratype; **F**—*K. interstitialis* **sp. nov.**, ♂ holotype, Dalrymple Creek, Queensland; **G**—*K. brachypalpis* **sp. nov.**, ♂ holotype, Walker Creek, Northern Territory; **H—***K. inconspicua* **sp. nov.** ♀ paratype, Moline Bottom Rockhole, Northern Territory; **I**—*K. caniaensis* **sp. nov.**, ♂ holotype, Fern Tree Pool, Queensland.

Remarks. From *Koenikea australica,* a species similar in the presence of five pairs of glandularia on the dorsal shield and peg-like seta of P4 located on tubercle, the new species clearly differs in lacking peculiar coloration of the dorsal shield, a different arrangement of dorsal glandularia (in *australica* glandularia 4 shifted more from the lateral margin, and slightly anterior to the peripherally placed glandularia on a very large tubercle; see Cook 1986 fig. 968), excretory pore lying on an extension and much shorter leg segments, I-leg-6 < 150 µm (in *australica* I-leg-6 > 200

μm). Moreover, in the new species the posterior margin of Cx-IV is oblique and genital plates are tapering. *Koenikea caniaensis* **sp. nov.** has a more or less similar arrangement of the glandularia on the dorsal shield, but the posterior margin of Cx-IV is concave (straight in *K. tuberculata* **sp. nov.**) and the setal tubercle of P-4 is less prominent and closer to the distal margin of the segment.

Discussion

Based on our results and the data presented in Smit (2004, 2021), we can draw the following conclusions regarding the distribution of *Koenikea* species in Australia:

1. Species with a wide distribution, occurring across the continent: *Koenikea sorpresa*.
2. Species with their main distribution in southeastern and southwestern Australia: *Koenikea australica.*
3. Species with their main distribution in the tropical part of Australia: *Koenikea branacha*, *K. circularis*, *K. distans*, *K. pseudodistans*, *K. rubipes, K. setosa* and *K. timmsi*.

The majority of the species, however, have a limited distribution and/or are only known from a limited number of localities. There is one species known only from SW Australia, i.e. *K. longiseta* Smit, 2021. However, the latter species is only known from two localities and additional data are needed before we can draw final conclusions about its distribution.

Key to the Australian *Koenikea* species

1.	Without apophyses associated with the dorsal shield	2
-	With apophyses associated with dorsal shield	*Koenikea sorpresa*
2	Five pairs of glandularia on dorsal shield	3
-	Six pairs of glandularia on dorsal shield	7
3	I-leg-6 < 150 μm	4
-	I-leg-6 > 200 μm	5
4	All dorsal glandularia lying in the periphery of the dorsal shield	*Koenikea tuberculata* **sp. nov.**
-	Dgl-4 distanced from periphery of dorsal shield	*Koenikea lewisensis*
5	All dorsal glandularia lying in the periphery of the dorsal shield	*Koenikea caniaensis* **sp. nov.**
-	One pair distance from periphery of dorsal shield	6
6	Peg-like seta of P-4 located on a tubercle	*Koenikea australica*
-	Peg-like seta of P-4 located directly on segment	*Koenikea decapora* Cook, 1986
7 (2)	Dorsal shield with one pair of glandularia placed close together near middle of shield, the other five pairs peripheral	*Koenikea piota* Cook
-	Dorsal shield not with one pair very close together near middle of shield	8
8	Grooved or fluted setae ("rillborsten") of first and second legs relatively short (rillborsten of 1-leg-4 shorter than half of segment)	*Koenikea curtiseta* Cook, 1986
-	Grooved or fluted setae longer, those of 1-leg-4 longer than half of segment	9
9	Glandularia 3, 4 and 5 more or less in a line	10
-	Glandularia 3, 4 and 5 not in a line, but glandularia 3 and 4 much closer to lateral margin than glandularium 4	11
10	Small species, both male and female < 500 μm, peg-like seta of P-4 inserted well before distal end of segment	*Koenikea jacunda*
-	Larger species, both male and female> 600 μm, peg-like seta of P-4 inserted near distal end	11
11	Peg-like seta of P-4 inserted on a long tubercle (peg-like seta shorter than its tubercle)	*Koenikea lemba*
-	Peg-like seta of P-4 inserted on a short tubercle (peg-like seta longer than its tubercle)	*Koenikea voloma* Cook, 1986
12	Palp very slender	*Koenikea gracilipalpis* Smit, 2004
-	Palp not very slender	13
13	Coxal setae very long, especially of first coxal plates (anterior coxal setae extending beyond suture lines of first and coxal plates)	14
-	Coxal setae not very long	15
14	Idiosoma large, ventrally 623–881 in male, 821–1003 in female, Dgl-5 distanced from each other and close to Dgl-3 and Dgl-4	*Koenikea crinita*
-	Idiosoma smaller, 454 in male and 526–535 in female, Dgl-5 much closer to each other and distanced from Dgl-3 and Dgl-4	*Koenikea longiseta* Smit, 2021
15	Glandularia 3 and 4 of dorsal shield only slightly closer to each other on their respective sides than glandularia 5 and 6 are to each other; projections associated with IV-leg insertions hook-like	*Koenikea rutala*

-	Glandularia 3 and 4 much closer to each other on their respective sides than 5 and 6 are to each other; projections associated with IV-leg insertions not hook-like	16
16	Anterior margin of genital field with numerous small setae	*Koenikea setosa* Smit, 2004
-	Anterior margin of genital field without numerous small setae	17
17	Apodemes of first coxal plates very long, reaching to or beyond middle of fourth coxal plates	18
-	Apodemes of first coxal plates less long, reaching slightly beyond suture line of third and fourth coxal plates	19
18	Apodemes of first coxal plates reaching to middle of fourth coxal plates; Cxgl-2 lying halfway posterior margin of Cx-IV and genital field	*Koenikea yorkensis* **sp. nov.**
-	Apodemes of first coxal plates reaching to posterior margin of Cx-IV; Cxgl-2 lying close to posterior margin of Cx-IV	*Koenikea circularis* Smit, 2004
19 (17)	Very slender species, length/width ratio of dorsal shield 1.47	*Koenikea rodosa* Cook, 1986
-	Not as slender, length/width ratio of dorsal shield less than 1.25	20
20	Posterior margin of Cx-IV reversed heart-shaped	*Koenikea brachypalpis* **sp. nov.**
-	Posterior margin of Cx-IV not heart-shaped but straight	21
21	Genital field small, with fewer than 10 pairs of acetabula	22
-	Genital field larger, with more than 10 pairs of acetabula	25
22	Genital field bulging in male, swimming setae of male shortened; genital field in both sexes with an enlarged glandularium	*Koenikea rubipes* Smit, 2004
-	Genital field in male various, swimming setae longer; genital field without an enlarged glandularium	23
23	Claw of male IV-leg-6 enlarged, apodemes of first coxal plates extending to suture line of third and fourth coxal plates; dorsal shield not dome-shaped	*Koenikea pauciacetabulata* Smit, 2004
-	Claw of male IV-leg-6 not enlarged, apodemes of first coxal plates extending beyond suture line of third and fourth coxal plates; dorsal shield dome-shaped	24
24	Male gonopore bulging, relatively wide; pair of Dgl-6 relative well distanced	*Koenikea saponaria* Smit, 2007
-	Male gonopore not bulging, slit-like; pair of Dgl-6 relatively close to each other	*Koenikea interstitialis* **sp. nov.**
25(21)	Claw of IV-leg-6 large, in male 60-70 µm in width (= from tip of claw to base), in female 38–42 µm in width	*Koenikea pseudodistans*
-	Claw of IV-leg-6 smaller	26
26	Cxgl-2 closer to posterior margin of Cx-IV or halfway posterior margin of Cx-IV and genital field	27
-	Cxgl-2 closer to genital field	28
27	Ventral seta P-4 on a short tubercle, P-4 slender	*Koenikea timmsi*
-	Ventral seta of P-4 not on a tubercle, P-4 stocky	*Koenikea inconspicua* **sp. nov.**
28 (26)	IV-leg-6 in male < 180 µm, < 170 µm in female, small species (L male 462–545, L female 518–745	*Koenikea branacha*
-	IV-leg-6 in male> 190 µm, in female> 200 µm, large species (L male 567–632, L female 737–879	*Koenikea distans*

Acknowledgements

We are indebted to the national park authorities of the Northern Territory, Queensland, New South Wales and Tasmania for their permission to collect in the national parks. Truus van der Pal (Alkmaar) assisted on all collecting trips.

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