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NEW SPECIES OF THE WATER MITE GENUS *ARRENURUS* FROM EASTERN AUSTRALIA (ACARI: HYDRACHNIDIA: ARRENURIDAE)

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Abstract

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Five new species of the water mite genus *Arrenurus* from Queensland, Victoria and Tasmania are described, viz. *A. acutipetiolatus* sp. nov., *A. maria* sp. nov., *A. hybridus* sp. nov., *A. queenslandicus* sp. nov and *A. perplexus* sp. nov. The name *Arrenurus mantonensis* Smit is preoccupied, and therefore the new name *Arrenurus bifurcatus* nom. nov. is proposed. *Arrenurus madaraszi* Daday is recorded for the first time from Australia. Some measurements, additional characters and new records are given for already known species.

Introduction

Of the cosmopolitan water mite genus *Arrenurus* 35 species and subspecies are known from Australia (Smit, 1997), a relatively low number compared to the 150 species from Europe (Smit, 1996). A key of all Australian species was provided by Smit (1997). In this paper five new species from Victoria, Tasmania and Queensland are described, and one new name is given to a previously described species. Additionally, one species new to the fauna of Australia is reported and some additional characters and measurements are given for already known species.

All material has been collected by the author. Victorian and Tasmanian holotypes and paratypes have been deposited in Museum Victoria, Melbourne (NMV), and in the Tasmanian Museum and Art Gallery, Hobart (TM) respectively. Holotypes and paratypes from Queensland have been deposited in the Queensland Museum, Brisbane (QM). Other paratypes and all non-type material have been deposited in the Zoological Museum of the University of Amsterdam (ZMAN).

The following abbreviations have been used (see figs 1, 2 and 6): A1 and A2, pre- and post antennal glandularia; C2–4, coxoglandularia 2–4; D1–4, dorsoglandularia 1–4; L1–4, lateroglandularia 1–4; V2, ventroglandularia 2; PI–PV, palp segments 1–5; IV-leg-4–6, fourth–sixth segments of fourth leg; NHRS, Swedish Museum of Natural History. For the description of the glandularia, Jin and Wiles (1996) and Wiles (1997) are followed. All measurements are in µm, measurements of leg and palp segments are of the dorsal margins. Measurements of paratypes in the description of new species are given in brackets. Scale lines are 200 µm for most figures and 50 µm for figures of the palp.

Arrenurus (Arrenurus) acutipetiolatus sp. nov.

Figures 1–6

Material examined. Holotype. Male, Victoria, swamp at junction of Victoria Valley Road and Bundol Road, SW of Grampians National Park, 30 Sep 1997 (NMV).

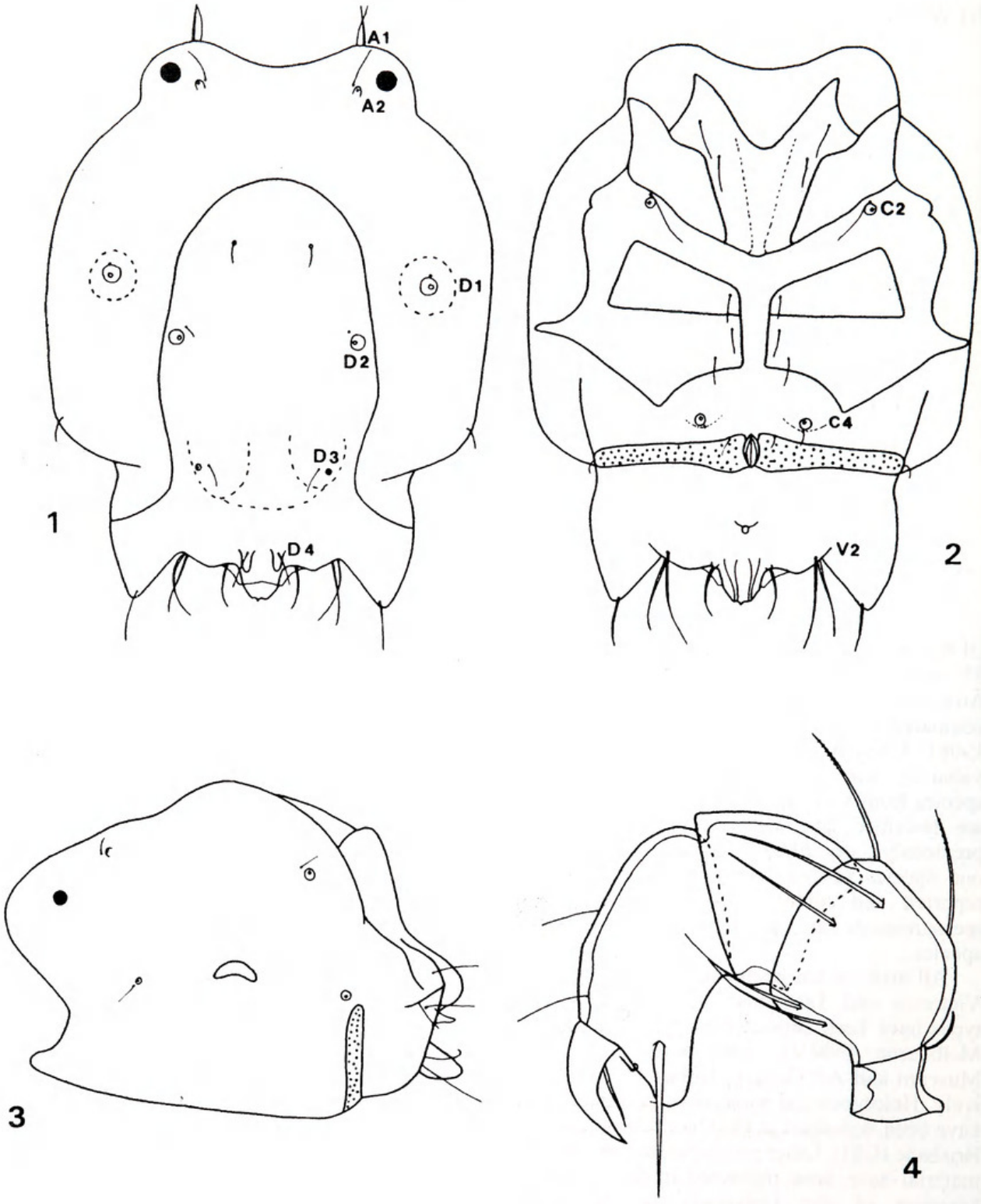
Paratypes: Victoria: 8 males, 22 females, same data as holotype (NMV, TM, ZMAN).

Tasmania: 14 females, Reservoir of Darlington, Maria Island National Park, Tasmania, 18 Oct 1997 (ZMAN).

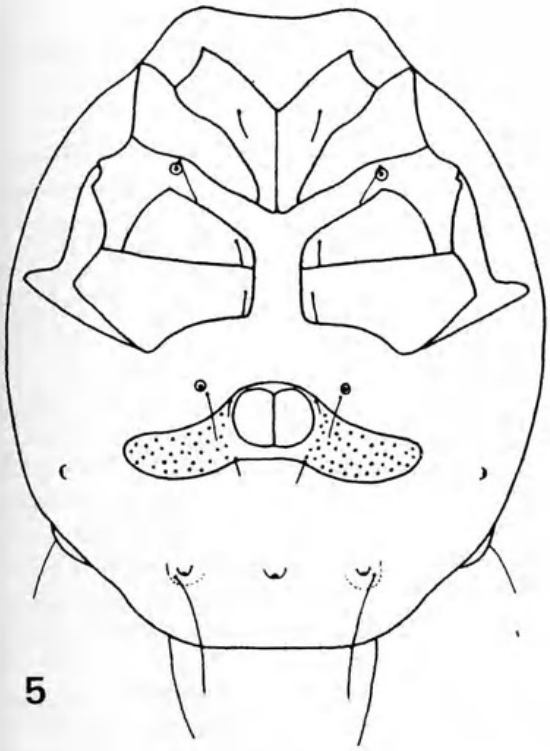
Other material. New South Wales: 1 female, Mt Victoria, 24 Oct 1936, leg. F. Linder (NHRS, slide 3414, *"A. fissipetiolatus"*).

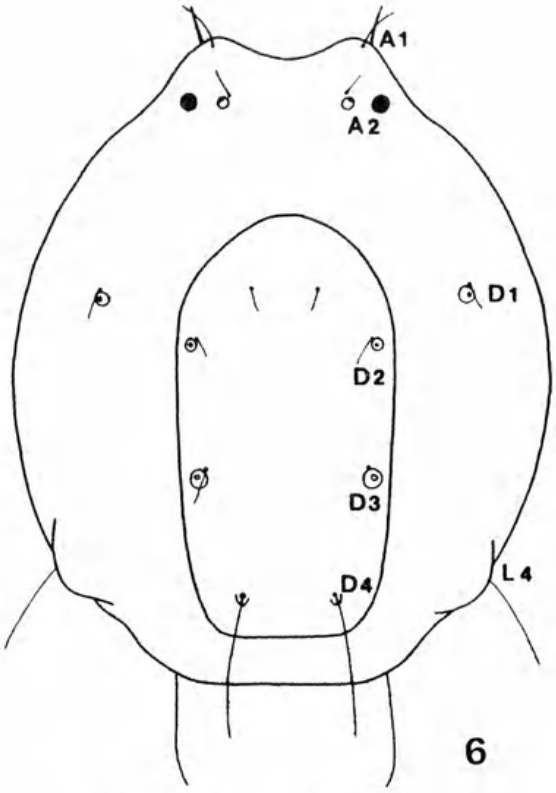
Diagnosis. Petiole without ligulate process, narrowed posteriorly, with pointed extension. Female with L4 and V2 on small humps.

Description. Male: Body 1499 (1464–1584) in length and 1222 (1128–1248) in width. Body brownish. Anterior body margin concave. Body with well developed pygal lobes. Dorsal shield 601 in width, dorsal furrow incomplete. D1 on small humps, D3 on large humps. Setae associated with D4 on long tubercles. Genital plates



Figures 1–4. *Arrenurus acutipetiolatus.* 1, holotype male, dorsal view. 2, ventral view. 3, lateral view. 4, palp.





Figures 5, 6. *Arrenurus acutipetiolatus*. 5, paratype female, ventral view. 6, dorsal view.

straight, medially widened, extending to lateral body margin. Petiole posteriorly narrowed, with a pointed extension; ligulate process absent. Hyaline membrane well developed, with more or less pointed lateral angles, posteriorly concave. Setae associated with petiole extending beyond posterior margin of petiole. Lengths of PI–PV: 60, 130, 108, 149, 88; PII with 4 setae on medial side, of which 2 in anteroventral corner. Antagonistic bristle of PIV 106 long. Lengths of I-leg-4–6: 301, 262, 252. Lengths of IV-leg-4–6: 407, 204, 262; IV-leg-4 with a short spur. Second, third and fourth legs with numerous swimming setae.

Female: Body 1656 (1608–1992) in length and 1416 (1344–1764) in width. Anterior margin of body concave. Body truncated posteriorly, posterolateral corners present. Dorsal shield 1056 (1032–1344) in length and 563 (446-582) in width. Dorsal shield slender, usually widest in anterior part, slightly tapering posteriorly, posterior margin straight. Body shape and shape of dorsal shield variable, less truncated specimens can be found, as well as specimens in which the dorsal shield is contracted in middle or with parallel margins. L4 on small humps. Distance of fourth coxal plates larger than width of 1 genital valve. Medial margin of fourth coxal plates larger than medial length of third coxal plates. Gonopore 116 long. Gonopore without chitinized patches. Genital plates wide, slightly bowed. V2 on small humps. Lengths of PI-PV: 48, 132, 118, 144, 89. Palp as in male, antagonistic bristle of PIV 103 long. Lengths of I-leg-4–6: 281, 233, 242. Lengths of IV-leg-4–6: 349, 301, 267. Second, third and fourth legs with numerous swimming setae.

Etymology. The name refers to the pointed petiole.

Remarks. The new species is close to *A. fissipetiolatus* Lundblad. Both have an almost similar palp (long antagonistic bristle of PIV, 2–3 setae in anteroventral corner of PII). Males are easily distinguished by the shape of the petiole, but distinguishing the females is more difficult. Both have a rather slender dorsal shield, which character they share with *A. balladoniensis* Halík and *A. ensifer* Smit. The last species is the smallest, 1416 in length. *A. balladoniensis* is the largest, measuring 1848–2232 in length (Smit, 1997). *A. balladoniensis* can be told apart from *fissipetiolatus* and *acutipetiolatus* by the shape of the genital plate, which is much narrower than that of the last two species. *A. acutipetiolatus* differs from *A. fissipetiolatus* by having L4 on tubercles and a posteriorly more truncated body. Another useful

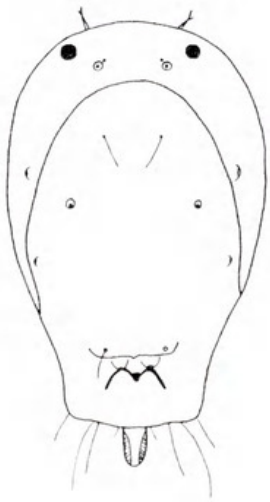
character by which to distinguish the two species is the shape of the dorsal shield, which is more slender in *acutipetiolatus*. The ratio length/width of the dorsal shield is 1.73–2.04 in *acutipetiolatus* (usually >1.80) and 1.50–1.67 in *fissipetiolatus*. Lundblad (1947) described the female of *A. fissipetiolatus*, but he had some doubts if the assignment to this species was correct, because the male and the female came from different locations. The female described by Lundblad matches the description of *A. acutipetiolatus* (L4 on humps, body truncated, ratio dorsal shield 1.89), and should therefore be assigned to that species.

Arrenurus (Arrenurus) hybridus sp. nov.

Figures 7–10

Arrenurus sp. — Harvey, 1998: 106, fig. 32C.

Material examined. Holotype. Male, Victoria, pond, Hospice Plain, Mt Buffalo National Park, 10 Oct 1997 (NMV).



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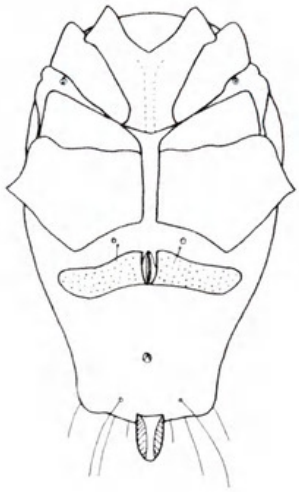

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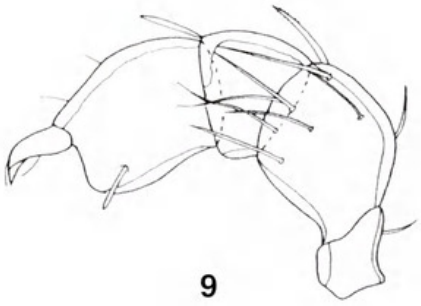

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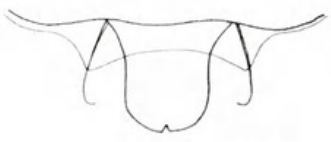

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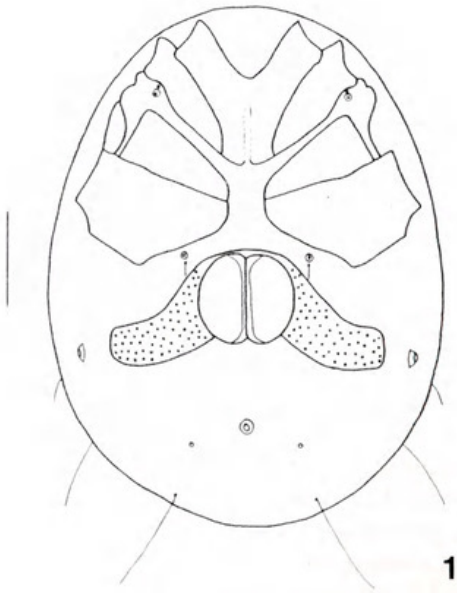

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Figures 7–10. *Arrenurus hybridus*, holotype male, 12, dorsal view, 13, ventral view. 14, palp. 15, paratype female, ventral view.
Figure 11. *Arrenurus fissipetiolatus* Lundblad, holotype male, detail of petiole.

Paratypes. Victoria: 1 male (ZMAN), 1 male (NMV), same data as holotype; 1 male (not sclerotized, ZMAN), 1 female (NMV), small ponds, Kowan Plain, ± 1400 m above sea level, Mt Buffalo National Park, 10 Oct 1997.

Diagnosis. Body with distinct cauda. Petiole present, spatulate. Hyaline membrane and ligulate process absent.

Description. Male: Body 951 (912–951) long and 543 (504–553) wide. Anterior body margin rounded. Body posteriorly gradually tapering into a distinct cauda. Cauda with a shallow concavity. Dorsal furrow not closed posteriorly. Posterior margin almost straight, with small indentations. First coxal plates extending beyond anterior body margin. Second and third coxal plates lying very close. Gonopore 72 long. Genital field 197 long, not extending to lateral body margin, slightly undulating. Petiole spatulate, hyaline membrane and ligulate process absent. Lengths of PI-PV: 38, 82, 65, 91, 31; PII with 7 (8?) setae on medial side. Lengths of I-leg-4–6: 136, 136, 146. Lengths of IV-leg-4–6: 194, 184, 155. IV-leg-4 without spur, but IV-leg-5 with dorsodistal extension. Second, third and fourth legs with numerous swimming setae.

Female: Body 1106 long and 825 wide, egg-shaped, without posterolateral corners. Anterior body margin rounded. Dorsal shield 970 long and 679 wide, dorsal furrow closed. Medial lengths of third and fourth coxal plates of equal length, fourth coxal plates almost without posteromedial corner. Gonopore large, 165 in length; gonopore with indistinct sclerotized patches. Genital plates bowed, laterally somewhat rectangular. Lengths of PI-PV: 46, 98, 82, 108, 48; PII with 8 setae on medial side. Second, third and fourth legs with numerous swimming setae.

Etymology. The name refers to the somewhat intermediate position of the new species between the subgenera *Arrenurus* and *Megaluracarus*.

Remarks. No other Indo-Australian *Arrenurus* species has a distinct cauda with a spatulate petiole. The female is characterized by the combination of the absence of posterolateral corners, the absence of posteromedial corners of the fourth coxal plates and the medial margins of the third and fourth coxal plates being of equal length.

Arrenurus (Arrenurus) bifurcatus nov. nom.

Remarks. When describing *A. (Arrenurus) mantonensis* Smit, 1997, I was not aware of the existence of *A. (Megaluracarus) mantonensis* George, 1903. This species was synonymized by Viets (1956) with *A. buccinator* (Müller). Therefore, the species described by me is a junior homonym of *A. mantonensis* George and thus requires a new name for which I propose *Arrenurus bifurcatus* nom. nov. The new name refers to the bifurcated setae of the petiole.

Arrenurus (Arrenurus) fissipetiolatus Lundblad

Figure 11

Arrenurus (Arrenurus) fissipetiolatus Lundblad, 1947: 73, figs 46A—D. — Cook, 1986, figs 1632–1637.

Material examined. Holotype. Male, Victoria, Maryborough, 24 Sept 1926, leg. E.J. Semmens (NHRS, slide 3413).

Other material. Victoria: 1 female, swamp at junction of Victoria Valley Road and Bundol Road, SW of Grampians National Park, 30 Sep 1997.

Tasmania: 1 male, 14 females, Blackmans Lagoon, Waterhouse Protected Area, 21 Oct 1997; 4 females, Little Waterhouse Lake, Waterhouse Protected Area, 21 Oct 1997.

Description. Male: Body 1488 (1337–1483) in length and 1272 (1064–1138) in width (in brackets the measurements of Lundblad, 1947 and Cook, 1986).

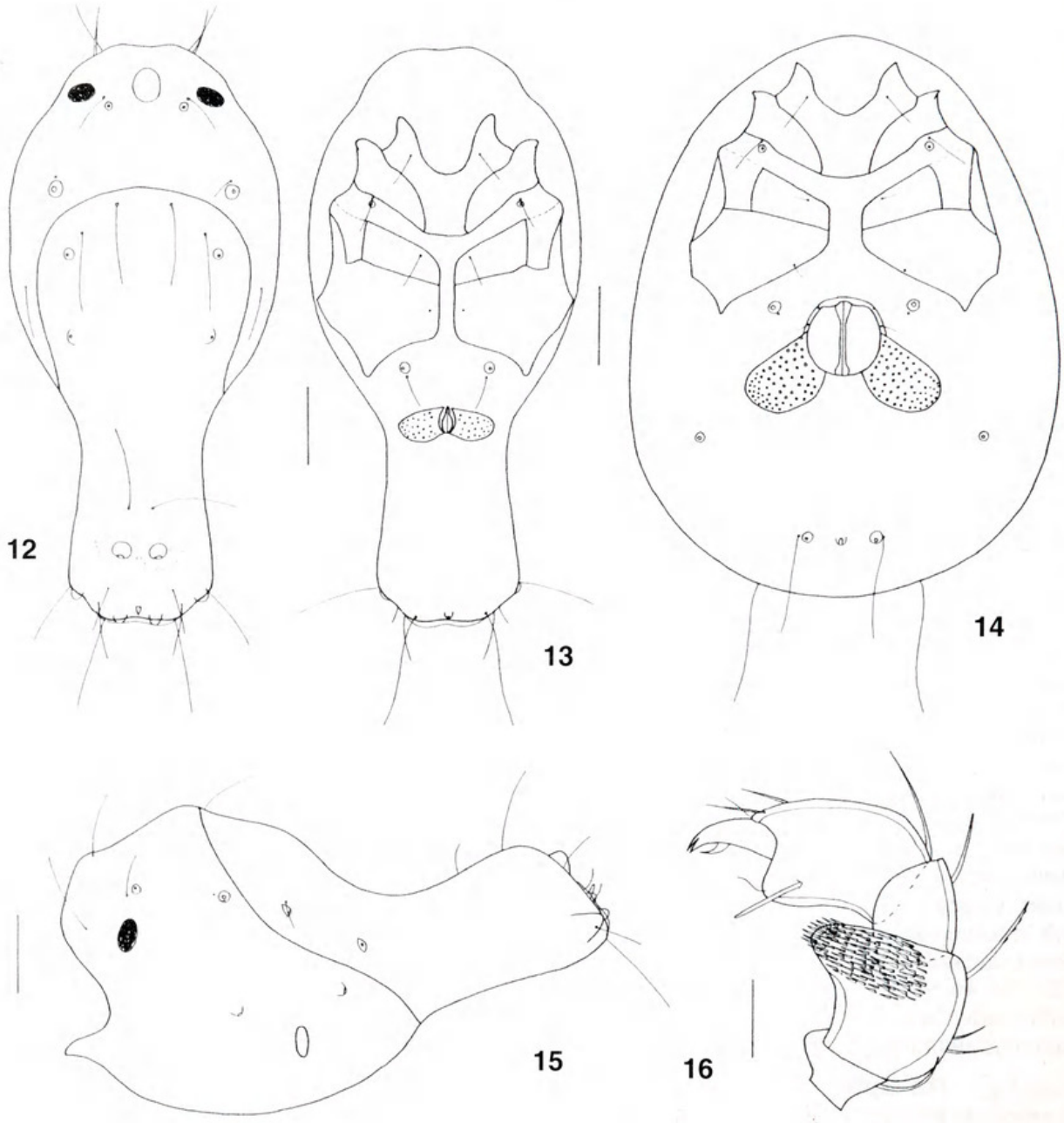
Female: Body 1680–1944 (Cook, 1986: 1581) in length and 1392–1656 (Cook, 1986: 1292) in width. Dorsal shield 1104-1320 in length and 281-364 in width; usually widest in middle. L1 shifted dorsally towards dorsal shield and therefore visible in dorsal view.

Remarks. Contrary to Lundblad's description, the male does not have a long spur. The holotype (Figure 16) and my own specimen have a notch in the posterior margin of the petiole. However, Cook (1986) could not observe this in all his specimens. The genital plate of most of my female specimens fit well with the description of Cook (1986). However, occasionally some specimens have a narrower genital plate, while others have a genital plate with a slightly undulating posterior margin. The species has been reported from Victoria and Tasmania. However, the number of specimens collected so far is very limited. Therefore, some additional characters and measurements are given. The female described by Lundblad (1947) belonged to another species (see under *A. acutipetiolatus*).

Arrenurus (Megaluracarus) maria sp. nov.

Figures 12–16

Material examined. Holotype. Male, Tasmania, reservoir of Darlington, Maria Island National Park, 18 Oct 1997 (TM).



Figures 12–16. *Arrenurus maria*. 7, holotype male, dorsal view. 8, ventral view. 9, lateral view. 10, palp. 11, paratype female, ventral view.

Paratypes. Tasmania: 1 female, same data as holotype (TM); 1 female, Apsley River, at crossing with Tasmanian Highway, 19 Oct 1997 (ZMAN).

Diagnosis. Male with a long cauda, posterior margin of cauda with a small hyaline area and 4 rounded hyaline extensions, 1 peg-like rudimentary petiole.

Description. Male: Body 1465 long and 708 wide. Anterior and posterior body part brownish, middle part bluish, cauda purple; legs bluish. Anterior body margin almost straight, body truncated anteriorly. In the middle between the eyes an area without body pores. Postocularia setae and setae associated with dorsoglandularia 2 and 4 very

long. Cauda much longer than wide, width of cauda 359. D4 on small humps. Posterolateral corners of cauda rounded. Cauda posteriorly with a distinct hyaline area and 4 rounded, hyaline extensions. Petiole rudimentary, peg-like. Genital field 252 in width. Genital plates short and rounded. Lengths of PI–PV: 24, 94, 62, 116, 53. PII with a large patch of setae lying on a bulge. Lengths of I-leg-4–6: 206, 243, 180. Lengths of IV-leg-4–6: 272, 184, 243; IV-leg-4 with a short spur. Second, third and fourth legs with numerous swimming setae.

Female: Body 1416 (1320) long and 1077 (1009) wide. Dorsal shield 897 long and 902 wide; dorsal furrow complete. Body brownish, posterior and anterior body parts purple; legs bluish. Between eyes an area without body pores. Body egg-shaped, without posterolateral or with indistinct posterolateral corners. Medial margin of third coxal plates larger than medial margin of fourth coxal plates. Medial distance of fourth coxal plates slightly smaller than width of 1 gonopore valve. Gonopore 194 long. Genital plates short and wide, sloping posteriorly, extending beyond posterior margin of gonopore. Lengths of PI-V: 36, 94, 67, 122, 50; palp as in male. Lengths of I-leg-4–6: 165, 204, 146. Lengths of IV-leg-4–6: 233, 272, 276. Second, third and fourth legs with numerous swimming setae.

Etymology. Named after the island where the type specimen was collected. Noun in apposition.

Remarks. The male of the new species is close to a number of Australian species with a long cauda, i.e. *A. otodus* Cook, *A. gilvus* Smit and *A. vanderpalae* Smit. The new species differs from *A. gilvus* and *A. vanderpalae* by its large size and the presence of only one peg-like rudimentary petiole (two in *gilvus* and *vanderpalae*), and from *A. otodus* by the lack of the pointed posterolateral corners of the cauda. Moreover, *A. maria* is larger than *A. otodus*, has a larger hump on which D4 are located, and its rounded hyaline extensions are not found in *A. otodus*. The female can be distinguished from all other species by having the medial margin of the third coxal plates larger than the medial margin of the fourth coxal plates.

Arrenurus (Micruracarus) forpicatoides Lundblad

Arrenurus (Micruracarus) forpicatoides Lundblad, 1941: 160. — Lundblad, 1947: 75, figs 47A–D. — Uchida and Imamura, 1951: 353, figs 18a–d. — Smit, 1992: 109.

Material examined. Victoria: 10 males, 21 females, swamp at junction of Victoria Valley Road and Bundol Road, southwest of Grampians National Park, 30 Sep 1997; 3 females, Lake Catani, Mt Buffalo National Park, 10 Oct 1997; 1 male, unnamed creek 4.5 km east of Shipwreck Creek, Croajingolong National Park, 23 Oct 1997.

Tasmania: 1 male, 2 females, old river branch of Coal River, north of Richmond, 17 Oct 1997; 1 female, swamp 12 km south of Gladstone, along road B82, 20 Oct 1997; 2 males, 10 females, Big Waterhouse Lake, Waterhouse Protected Area, 21 Oct 1997; 2 females, Little Waterhouse Lake, Waterhouse Protected Area, 21 Oct 1997.

Description. Male: Body 689–786 in length and 543–640 in width. Petiole occasionally reaching posterior body margin. Caudal lobes in some specimens rounded.

Female: Body 776-936 in length and 650-786 in width. Dorsal shield complete.

Remarks. The species was previously reported from Victoria, South Australia and Queensland. The specimens from Queensland reported by Smit (1992) do not belong to this species but to a new species described below. The record from China (Uchida and Imamura, 1951) needs confirmation as only females have been collected. Females of the subgenus *Micruracarus* with two pairs of rounded chitinized patches on the gonopore are difficult to identify. Moreover, the genital field of the specimens illustrated by Uchida and Imamura (1951) is laterally narrowed, a character not found in the Australian specimens.

Arrenurus (Micruracarus) queenslandicus sp. nov.

Figures 17–20

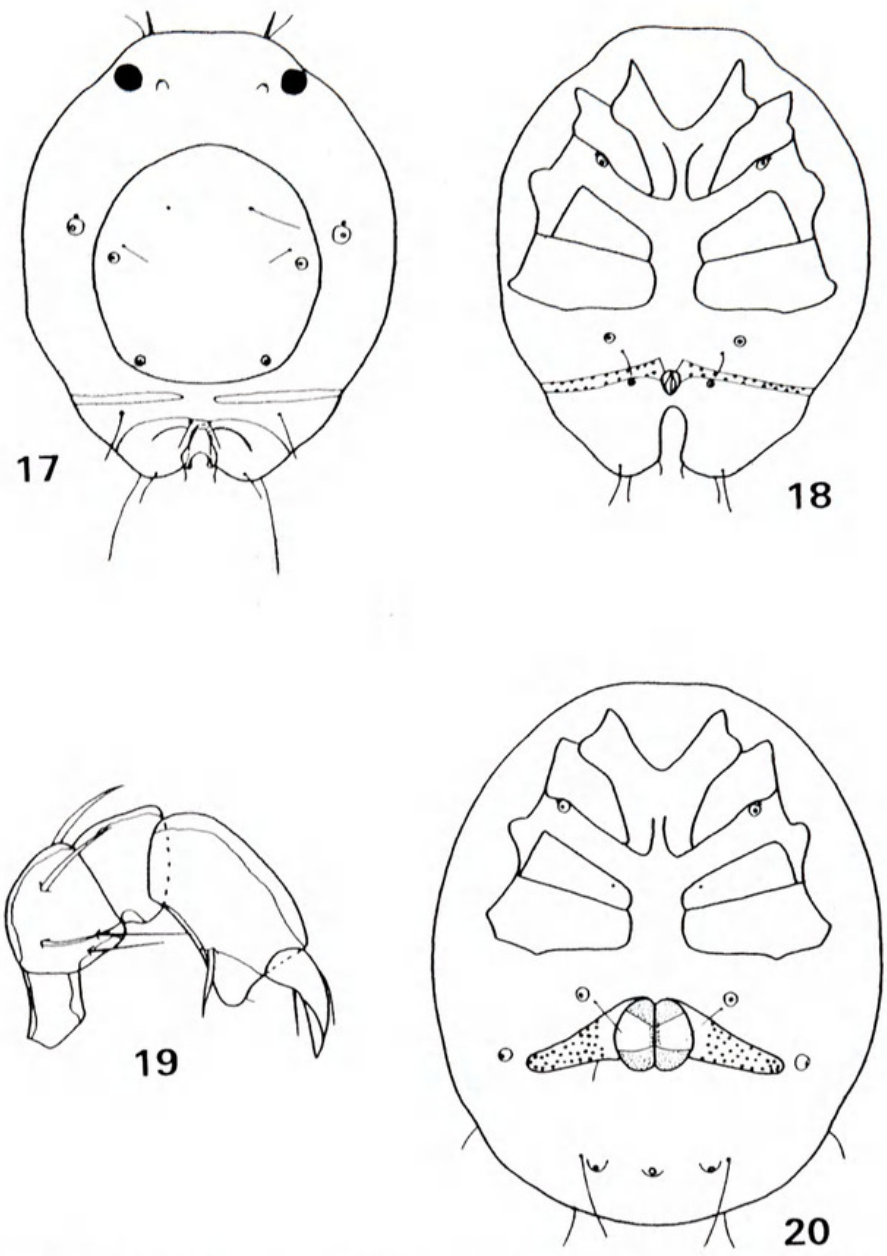
Arrenurus (Micruracarus) forpicatoides. — Smit, 1992: 109.

Material examined. Holotype. Male, Queensland, pond north of Normanton, 14 Aug 1989 (QM).

Paratypes. Queensland: 3 males, 5 females (QM), 3 males, 5 females (NMV), 3 males, 5 females (ZMAN), all same data as holotype; 3 males, 1 female (ZMAN), pond near Crocodile Road, Bowling Green Bay National Park, 31 Jul 1989; 3 males, 1 female (ZMAN), pond Townsville Common National Park, 1 Aug 1989; 1 male, Freshwater Lagoon, Horseshoe Bay, Magnetic Island, 3 Aug 1989.

Other material. Queensland: 2 females, pond north of Longreach, 15 Aug 1989.

Diagnosis. Cauda of male indistinctly set off from anterior part of body. Petiole tong-shaped, hyaline, fused with body by small hyaline area. Dorsal shield of female incomplete.



Figures 17–20. *Arrenurus queenslandicus*. 17, holotype male, dorsal view. 18, ventral view. 19, palp. 20, paratype female, ventral view.

Description. Male: Body 708 (660–795) in length and 611 (553–679) in width. Body yellowish brown to greenish. Anterior margin of body straight to slightly concave. Dorsal shield complete, 423 (359–456) in length and 417 (373-441) in width. Genital plates long and narrow, extending onto dorsum. Cauda indistinctly set off from anterior part of body. Cauda with median cleft. Petiole hyaline, tong-shaped, fused with body by a small hyaline area. Lengths of PI–PV: 31, 61, 40, 84, 50; PII with 4 setae on medial side, of which 2 close to ventral margin. Lengths of I-leg-4–6: 110, 113, 132. Lengths of IV-leg-4–6: 144, 134, 142; IV-leg-4 without a spur. Second, third and fourth legs with numerous swimming setae.

Female: Body egg-shaped, 951 (936–1048) in length and 786 (771–844) in width. Anterior body margin straight or slightly concave. Posterolateral corners of body almost absent. However, occasionally posterolateral corners more pronounced, and in these specimens body truncated posteriorly. Dorsal shield incomplete, 524 (495–572) in width. Medial distance of fourth coxal plates longer than width of 1 genital valve. Medial

margin of fourth coxal plates longer than medial margin of third coxal plates. Gonopore 98 long. Genital valves with large chitinous patches, anterior and posterior patches connected by chitinous strip. Genital plates straight to slightly bowed, tapering laterally. Lengths of PI-PV: 36, 70, 48, 89, 43; palp as in male. Lengths of I-leg-4–6: 130, 134, 125. Lengths of IV-leg-4–6: 155, 155, 136. Second, third and fourth legs with numerous swimming setae.

Etymology. The name refers to the state of Queensland in which the species has been found.

Remarks. I erroneously identified the species as *A. forpicatoides* (Smit, 1992). However, in the last species the cauda is distinctly set off from the body, the body is reddish brown and the tong-shaped part of the petiole is narrower. *A. anbangbang* Smit has a different shaped petiole which is not fused with the cauda. The female of the new species closely resembles *A. forpicatoides* but is larger, has a different colour and an incomplete dorsal shield.

Arrenurus (Micruracarus) perplexus sp. nov.

Figures 21–24

Material examined. Holotype. Male, Victoria, pond near Buckland River, at crossing with Buckland Valley Road (west of Bright), 11 Oct 1997 (NMV).

Paratype. Victoria: 1 female, same data as holotype (NMV).

Diagnosis. Cauda of male distinctly set off from body, lateral margin of cauda convex, body blue, petiole hyaline, tong-shaped. Body of female tapering posteriorly.

Description. Male: Body 635 long and 519 wide. Dorsal shield complete, 320 long and 320 wide. Body blue. Cauda distinctly set off from anterior part of body, lateral margins of cauda convex, caudal lobes rounded. Cauda posteriorly with a median cleft. D1 on small humps. Petiole hyaline, tong-shaped, fused with body by a small hyaline area. Genital plates narrow and long, extending onto dorsum. Lengths of PI-PV: 28, 50, 38, 72, 41; PII with 4 setae on medial side. Lengths of I-leg-4–6: 98, 94, 113. Lengths of IV-leg-4–6: 132, 125, 108; IV-leg-4 without spur. Second, third and fourth legs with numerous swimming setae.

Female: Body 757 long and 630 wide. Dorsal shield complete, 582 long and 432 wide; dorsal shield somewhat tapering posteriorly. Body tapering posteriorly, slightly truncated. Anterior margin of body straight. Medial distance of fourth coxal plates slightly larger than 1 genital valve. Medial margin of fourth coxal plates larger than medial margin of third coxal plates. Gonopore 97 long, each valve with 2 rounded chitinous patches. Genital plates straight, slightly sloping posteriorly and laterally somewhat enlarged. Lengths of PI-PV: 31, 55, 41, 86, 43. Palp as in male, but medial side of PII with 3 setae. Lengths of I-leg-4–6: 121, 125, 120. Lengths of IV-leg-4–6: 170, 156, 130. Second, third and fourth legs with numerous swimming setae.

Etymology. The name refers to the complicated structure of the petiole.

Remarks. The new species is close to *A. forpicatoides*, but differs in size, body colour and shape of the cauda. The hyaline petiole of the two species are nearly identical, although the tong-shaped part of the petiole is narrower in the new species. In *A. queenslandicus* the cauda is not set off from the body, but the petioles of the two species are very similar. The female of *A. perplexus* can be distinguished from *A. forpicatoides* by the body colour, shape of the body and the broader genital plates, and from *A. queenslandicus* by the complete dorsal shield.

The species of *Micruracarus* with a hyaline petiole form a complex group within the genus *Arrenurus*. In my material (from Hasties Swamp, Atherton Tablelands, Queensland) another species might be present, of which the only male is somewhat intermediate between *A. queenslandicus* and *A. perplexus*. There are differences in shape of the cauda and the body between this male and the males of the two aforementioned species. Unfortunately, all three females from this location are different, and I refrain from describing it as a new species until more material is available.

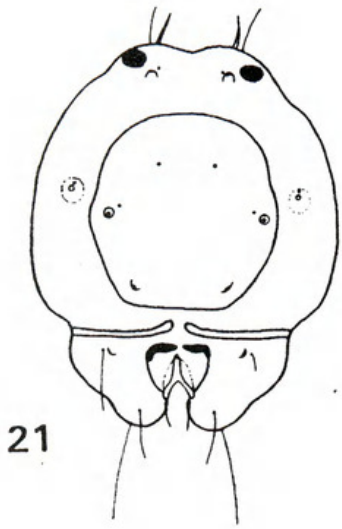
Arrenurus (Micruracarus) madaraszi Daday

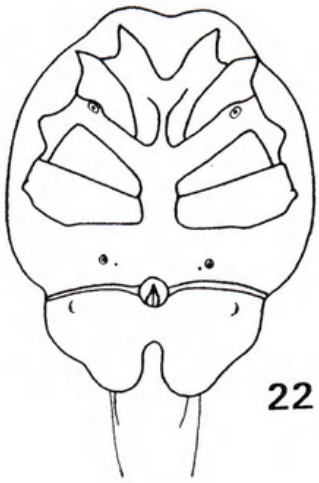
Arrenurus Madarászi Daday, 1898: 99, figs 49a–i.

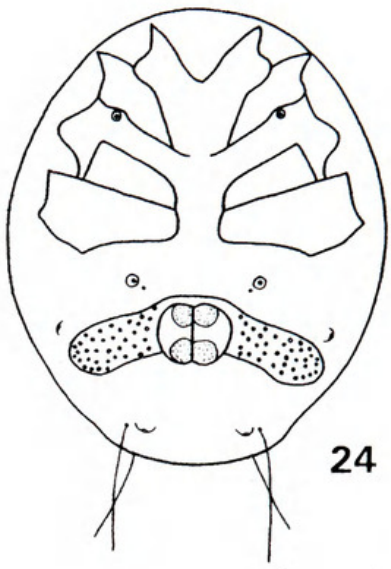
Arrenurus (Micruracarus) forpicatoides. — Smit, 1992: 109 (part).

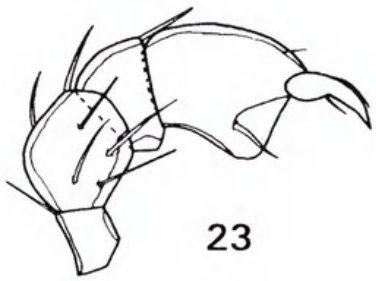
Material examined. Queensland: 1 male, pond in Townsville Common National Park, Queensland, 1 Aug 1989 (ZMAN).

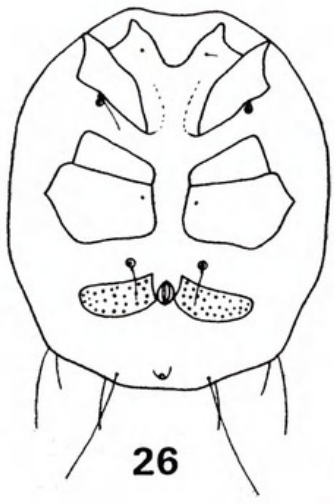
Remarks. Initially, the specimen has been identified erroneously as *A. forpicatoides* to which it is closely related. *A. madaraszi* is a very widespread species, known from Japan, China, Burma, India, Sri Lanka throughout Indonesia. This is the first record for Australia.

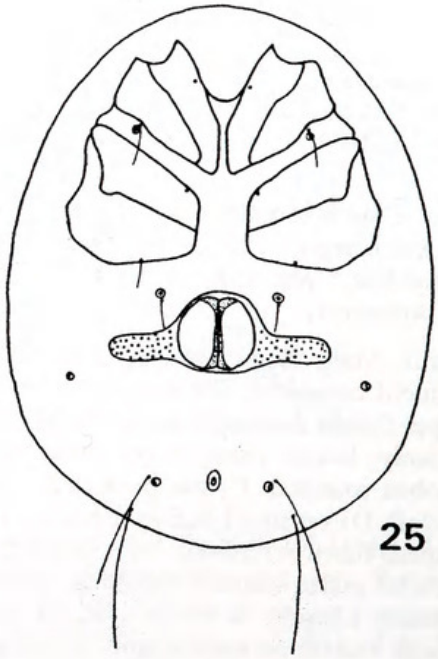












Figures 21–24. *Arrenurus perplexus*. 21, holotype male, dorsal view. 22, ventral view. 23, palp. 24, paratype female, ventral view.
Figure 25. *Arrenurus haswelli* Cook, ventral view female.
Figure 26. *Arrenurus novaehollandiae* Lundblad, ventral view male.

Arrenurus (Truncaturus) haswelli Cook

Figure 25

Arrenurus (Truncaturus) haswelli Cook, 1986: 309, figs 1653–1658, 1660.

Material examined. Holotype. Male, Tasmania, pond on southwest side of Great Lake, 18 Mar 1981 (NMV, slide K705). Paratype, female, same data as holotype (NMV, slide K706).

Other material. Tasmania: 7 males, 13 females, wetland south of Derwent River, 10 km east of New Norfolk, 17 Oct 1997 (ZMAN).

Description. Male: Body brownish. Males 757–834 in length and 485–533 in width.

Female: Body yellowish-brown to reddish-brown.

Remarks. Males in the series collected by me are smaller than the males of the type series, which measured 897–927 in length and 593–616 in width (Cook, 1986). Otherwise, males from this study fit well in the description of Cook. The females in my collection differ in a number of characters from females of the type series. Genital plates are much narrower as illustrated by Cook (1986). Moreover, the medial length of the fourth coxal plates is of equal length or smaller than the medial length of the third coxal plates (Figure 25). In the paratype female the medial lengths are more or less of equal size. The females from this study measure 960–1140 in length and 757–883 in width. As in the males, the females of this study are smaller than the type series.

So far, the species was only known from few specimens from the type locality, which is situated in Tasmania as well. The variation in genital plates is not unusual in female *Arrenurus* species (Smit, 1995). Because of this, and the fact that the males in my collection fit very well in the description of Cook (1986), all females are assigned to *A. haswelli*.

Arrenurus (Truncaturus) novaehollandiae Lundblad

Figure 26

Arrenurus (Truncaturus) novaehollandiae Lundblad, 1947: 79, figs 50A–D.

Material examined. Tasmania: 2 males, 7 females, reservoir of Darlington, Maria Island National Park, 18 Oct 1997 (ZMAN).

Description. Male: Body brownish. Body 771–786 in length and 640–645 in width. Genital plates wide, slightly bowed.

Female: Body colour as in male. Body 849–980 in length and 713–805 in width.

Remarks. Tasmanian specimens differ in colour and size from the type series but apart from this fit well with the description of Lundblad (1947). Specimens of the type-series are yellow-green and smaller. The species has only been reported from Victoria.

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