

NOTES ON THE GENUS *ANISOPS* SPINOLA (HEMIPTERA-HETEROPTERA, NOTONECTIDAE) OF THE NORTHERN TERRITORY AND WESTERN AUSTRALIA.

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ABSTRACT

A sample of water-bugs from the Elkedra River, about 340 km north east of Alice Springs, Northern Territory, has a remarkable mixture of Notonectidae, *Anisops* Spinola species from two zoo-subregions (Torresian and Eyrean), including a new species *Anisops elkedraensis*. Additionally, *Anisops hayesi* sp. nov. is described from the Alice Springs area and *Anisops ungarinyin* sp. nov. from the central Kimberleys, Western Australia.

KEYWORDS: Hemiptera, Notonectidae, *Anisops*, new species, Western Australia, Northern Territory.

INTRODUCTION

Amongst the collections of water-bugs in the Northern Territory Museum, Darwin, a sample from the Elkedra River (about 340 km north-east of Alice Springs), 21°13S, 135° 085'E, 28 September 1983, collected by P. Horner, H. Larson and K. Bishop, has been found to have an unusually high diversity of *Anisops spinola* species which includes Torresian and Eyrean elements. Two species, *Anisops gratus* Hale and *A. thienemanni* Lundblad, also extend over much of the Bassian region and are compared with forms from southern Queensland and south-western Australia respectively. The forms are figured and the possibility that *A. thienemanni* may be a group of sibling species is discussed briefly. *Anisops paracrinita* Brooks and *A. nasuta* Fieber are listed. Included in these notes are the descriptions of *Anisops hayesi* sp. nov. from Alice Springs and *Anisops ungarinya* sp. nov. from north-western Australia.

The Elkedra specimens including the type series of *Anisops elkedraensis* sp. nov. are deposited in the Northern Territory Museum (NTM), Darwin.

SYSTEMATICS

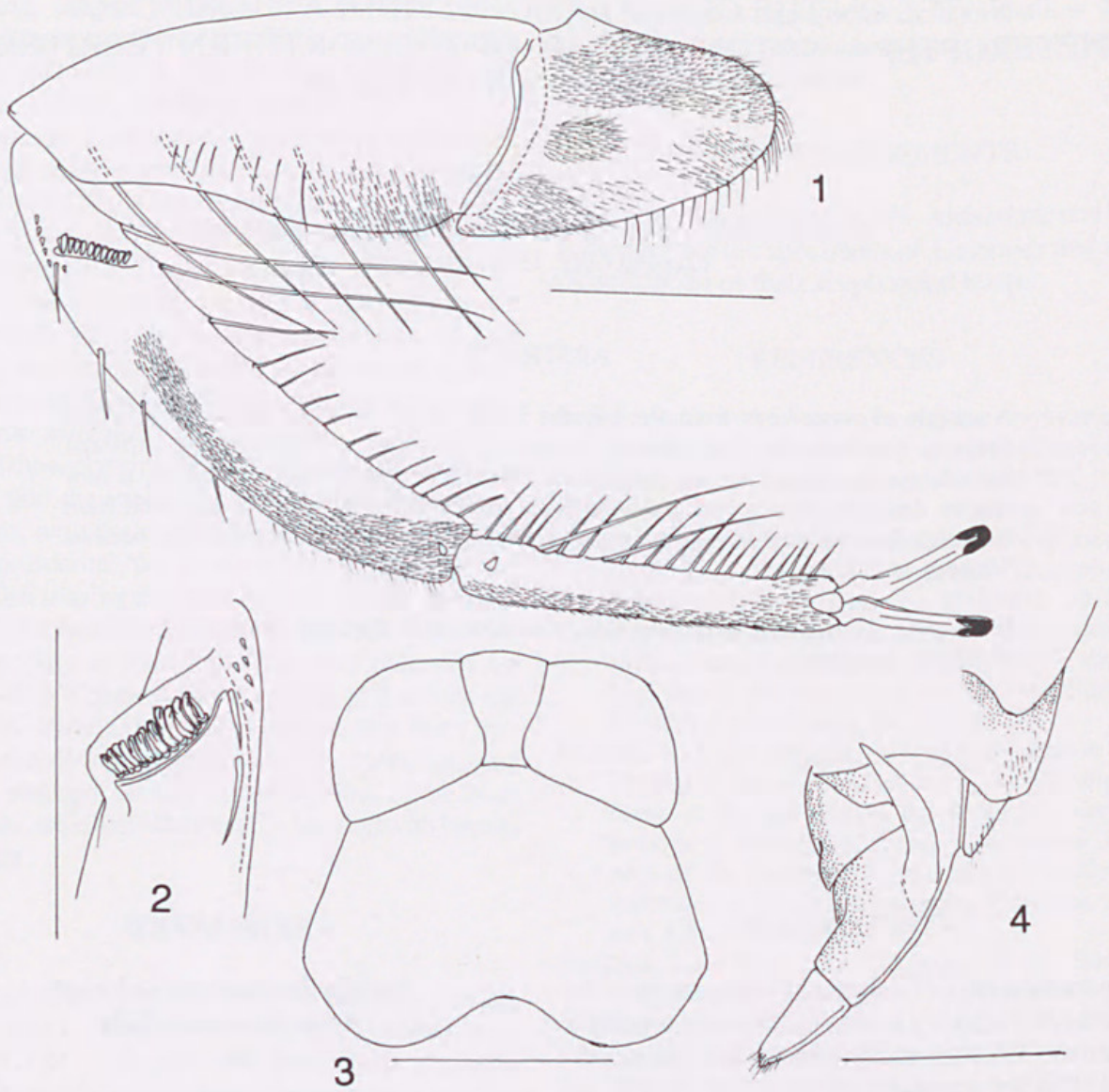
Family Notonectidae Leach *Anisops gratus* Hale (Figs 1-7)

Anisops gratus Hale, 1923: 413-414; -Brooks 1951: 352-353; -Sweeney 1965: 91; -Lansbury 1969: 448-449.

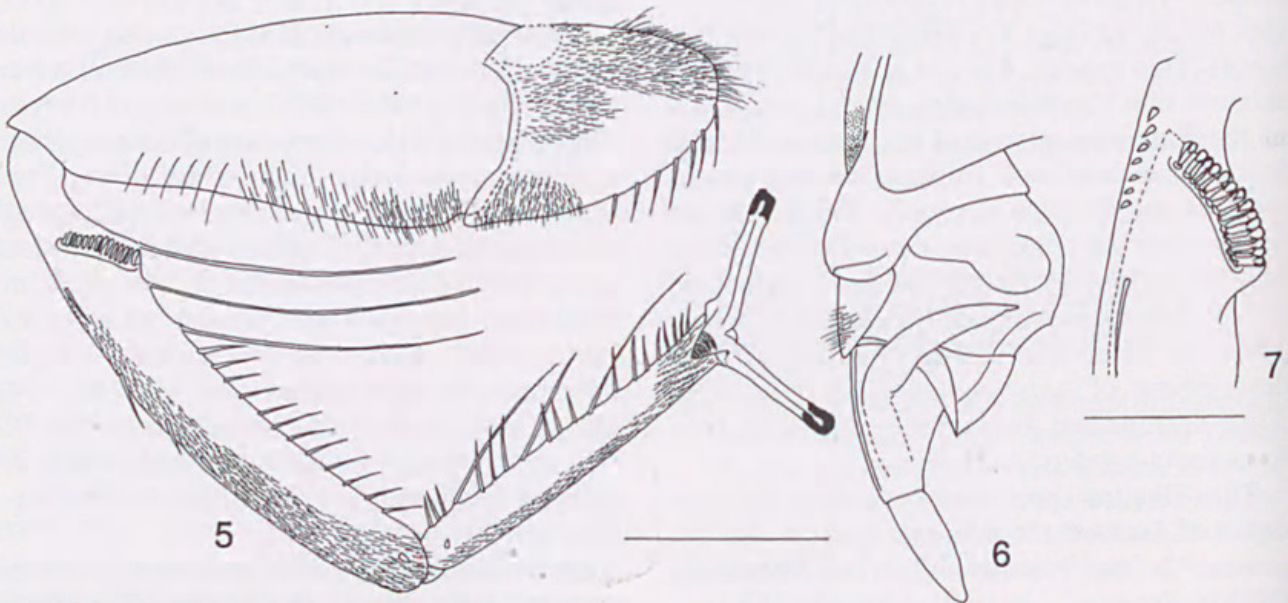
Material examined. NTM Entomological collection, Northern Territory, Elkedra River, 1 male.

Description. Male 8.54 mm long, 2.32 mm wide. Elkedra male: chaetotaxy of front leg (Fig. 1), stridulatory comb (Fig. 2), rostral prong (Fig. 4). Head and pronotum (Fig. 3), note long pronotum. This male has been compared with a series from south Queensland, Wyara System, Werewilka Creek (Wyara System on Boorara Station, Qld), total dissolved solids 12.8 g/l, coll. B.V. Timms. Male front leg (Fig. 5), stridulatory comb (Fig. 6), rostral prong (Fig. 7). The rostral prong of the Queensland form is rather more sharply curved and the facial tubercle is slightly raised.

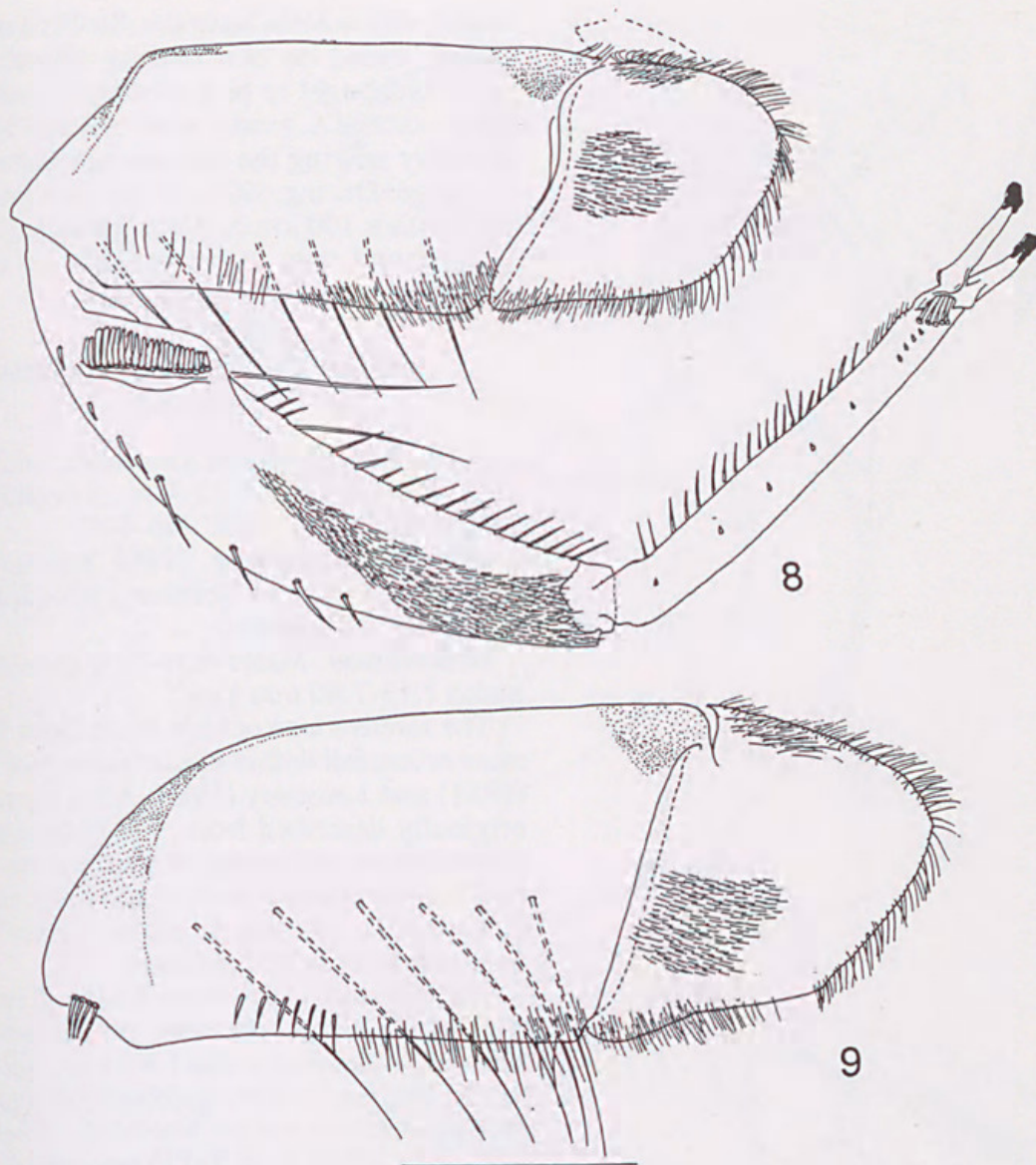
Distribution. The distribution of *A. gratus* is predominantly Eyrean and Bassian; the record



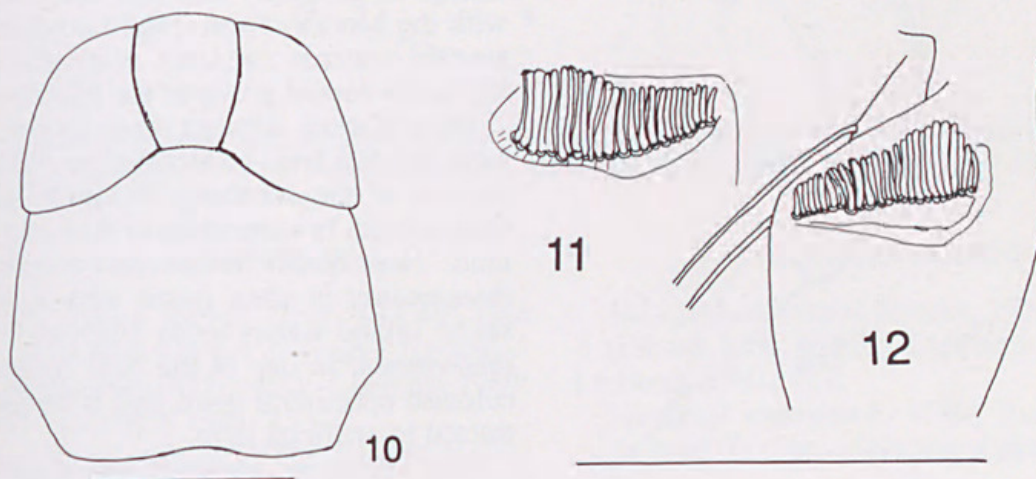
Figs 1-4. *Anisops gratus* male (Elkedra): 1, front leg, inner view, slide mounted; 2, stridulatory comb, slide mounted; 3, head and pronotum, dorsal view; 4, rostral prong. Scale line 0.5mm.



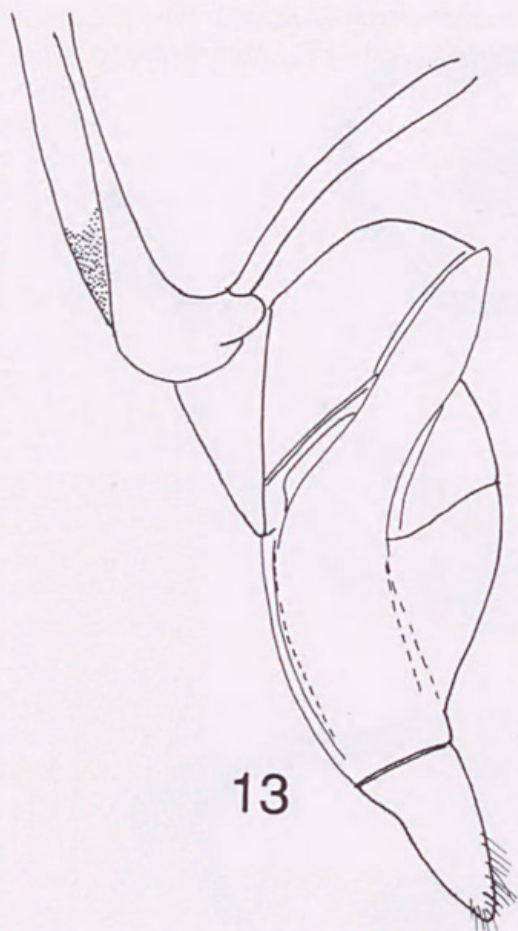
Figs 5-7. *Anisops gratus* male (Wyara): 5, front leg, inner view, slide mounted; 6, rostral prong; 7, stridulatory comb, slide mounted. Scale line 0.5mm.



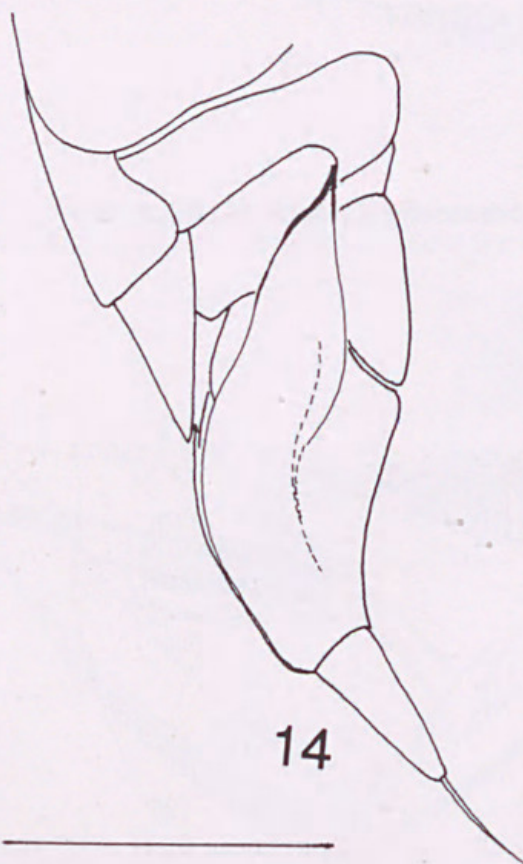
Figs 8-9. *Anisops thienemanni* male, front leg, inner view, slide mounted: 8, (Elkedra) front leg; 9, (War Rock) femur. Scale line 0.5mm.



Figs 10-12. *Anisops thienemanni* male (Elkedra): 10, head and pronotum, dorsal view. Scale line 1mm. 11, stridulatory comb, (War Rock); 12, stridulatory comb. Scale line 0.5mm.



13



14

Figs 13-14. *Anisops thienemanni* male (Elkedra): 13, rostral prong (War Rock); 14, rostral prong. Scale line 0.5mm.

from north-western Australia, Sir Graham Moore Island, based on two females (Brooks 1951: 353), is thought to be a misidentification. The occurrence of *A. gratus* north of Alice Springs is probably nearing the extreme northern edge of its range. During 1979, 20 habitats were sampled within 100 km of Alice Springs, *A. gratus* being found only in six habitats, in numbers consistently below 10 specimens.

Anisops thienemanni Lundblad
(Figs 8-14)

Anisops thienemanni Lundblad, 1933: 167-168; -Brooks 1951: 413-416; -Sweeney 1965: 88-89; -Lansbury 1969: 446-448.

Material examined. NTM Entomological collection. Northern Territory, Elkedra River, two males, 10 females.

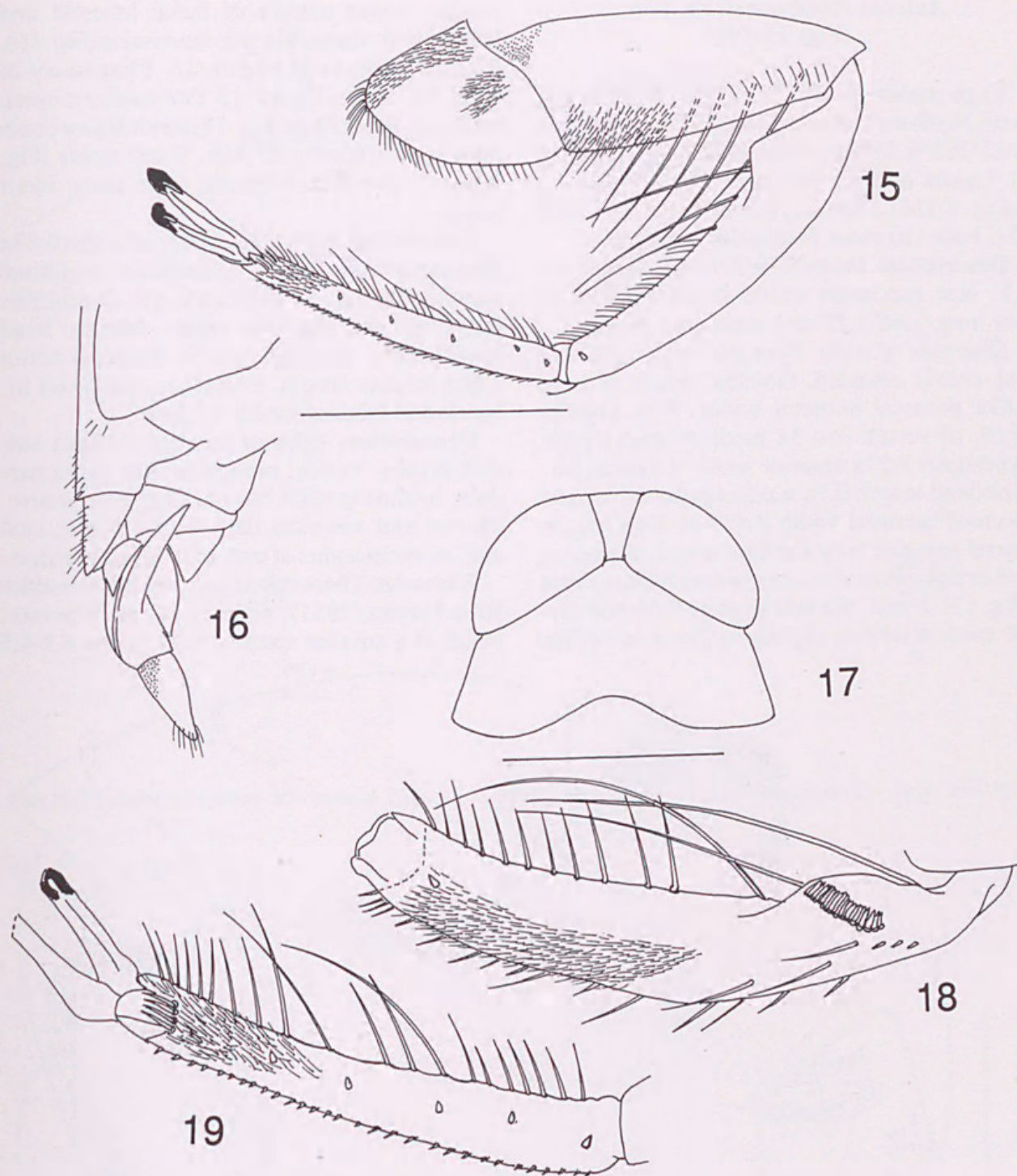
Description. Males 6.97-7.50 mm long, females 7.13-7.80 mm long.

The relative size of both sexes from Elkedra more or less fall within the parameters of Brooks (1951) and Lansbury (1969). This species was originally described from Java, Diengplateau. Australian records extend over most of the Eyrean and Bassian regions, and the species is common in Tasmania, whereas *A. gratus* is only known from one locality in Tasmania.

The Elkedra male front femur (Fig. 8) is distally acuminate, the ridge on the inner surface only extending a short distance across the femur. The femur of the more robust form from south-western Australia (War Rock, 15 km north of Morawa, 29°05'S 116°00'E) is rounded distally and the inner ridge is longer (Fig. 9). The stridulatory combs of both forms are similar (Figs 11-12). The head and pronotum of the Elkedra male (Fig. 10) has a long pronotum. The rostral prong of the Elkedra male (Fig. 14) differs in geometry and size when compared with the Morawa form (Fig. 13) which is constricted towards the apex compared with the explanate rostral prong of the Elkedra form.

Distribution. *Anisops thienemanni* does not seem to have been collected from the northern regions of the Northern Territory and north Queensland. In some areas of southern Queensland, New South Wales and elsewhere, *A. thienemanni* is often found with *A. gratus* in saline inland waters up to 14.0 mg/l. *Anisops thienemanni* is one of the first water-bugs to colonise ephemeral pools and is frequently attracted to artificial light.

The variation between the forms of *A. thienemanni* suggests that they may be a group of sibling species and the 'typical form' from Java is not conspecific with the Australian form.



Figs 15-19. *Anisops elkedraensis* sp. nov. paratype male: **15**, front leg (stridulatory comb omitted), slide mounted, inner view; **16**, rostral prong. Scale line 0.5mm. **17**, head and pronotum, dorsal view. Scale line 1mm. **18**, front tibia; **19**, front tarsus, slide mounted, inner view. Scale line 0.5mm.

Anisops nasuta Fieber

Anisops nasuta Fieber, 1851: 484-485 (see Brooks 1951:416-418 for extensive bibliography and synonymy 1851-1941); -Lansbury 1969: 440-441; -Lansbury 1991: 113.

Material examined. NTM Entomological collection. Northern Territory, Elkedra River, 3 males, 15 females. Torresian-Eyrean species, widespread in SE Pacific region.

Anisops paracrinita Brooks

Anisops paracrinita Brooks, 1951: 329-331; -Lansbury 1964: 57-58; -Lansbury 1969:434; -Lansbury 1991: 111.

Material examined. NTM Entomological collection. Northern Territory, Elkedra River, 1 male.

A Torresian species not previously recorded from Alice Springs area.

Anisops elkedraensis sp. nov.
(Figs 15-19)

Type material. HOLOTYPE - NTM I.551, male, Northern Territory, Elkedra River, 21°13'S - 135°085'E, 28 September 1982, coll. P. Horner, H. Larson and K. Bishop. PARATYPES - 8 males, NTM I.552-561; 8 females, NTM I.562-571, both lots same data as for holotype.

Description. Males 5.39-5.80 mm long, 1.49-1.51 mm maximum width, females 6.20-6.80 mm long, 1.66-1.72 mm maximum width.

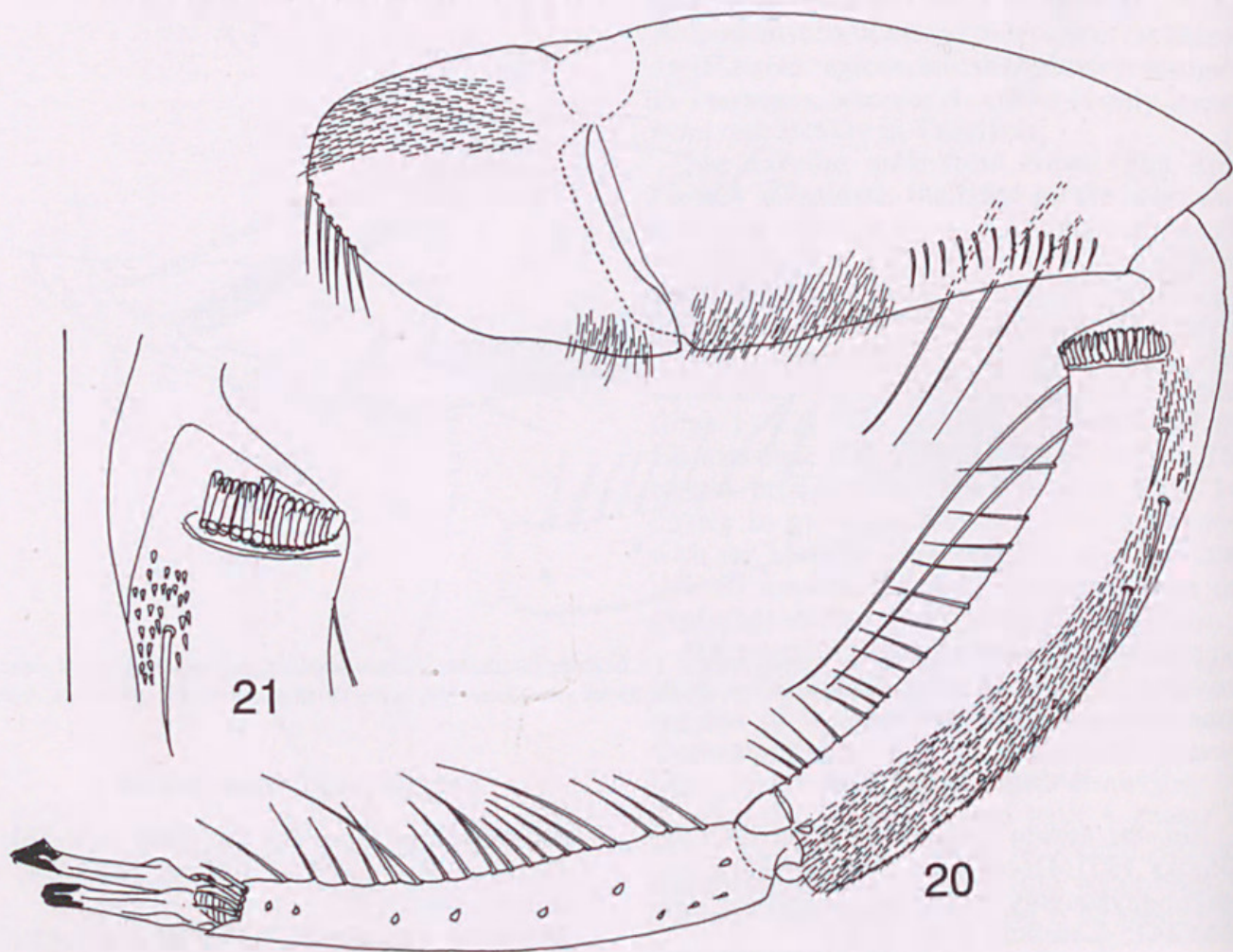
Structure of male. Eyes and vertex more or less evenly rounded. Greatest width of head 0.89x pronotal humeral width, 5.9x anterior width of vertex and 3x median head length. Synthlipsis 0.27x anterior width of vertex. Median head length 0.7x median pronotal length. Pronotal humeral width 2.43x median length, lateral margins 0.6x median length, diverging and straight. Posterior margin deeply emarginate (Fig. 17). Facial tubercle slightly flattened. Basal width of labrum slightly longer than median

length. Lower margin of facial tubercle and labrum with scattered erect short hairs (Fig. 16). Rostral prong as in Figure 16. Chaetotaxy of front leg as in Figure 15 (stridulatory comb omitted). Front tibia (Fig. 18) stridulatory comb with approximately 20 pegs. Front tarsus (Fig. 19) with five evenly spaced setae along inner margin.

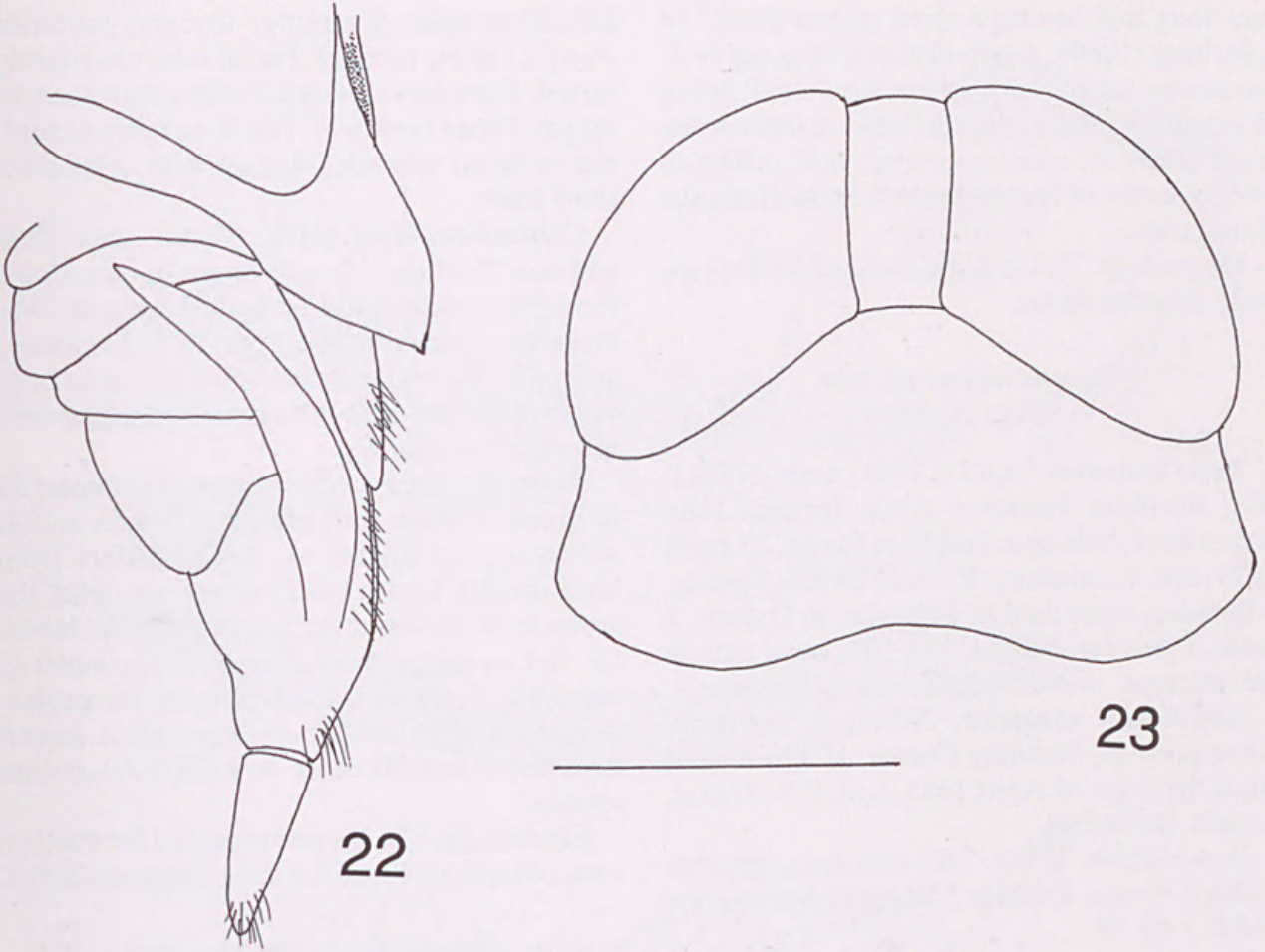
Structure of female. Greatest head width 0.87x pronotal humeral width, 6.36x anterior width of vertex and 3.50x median head length. Synthlipsis 0.28x anterior width of vertex. Median head length 0.66x pronotal length, humeral width 2.60x median length. Pronotum and facial tubercle and labrum similar to male.

Colouration. Ethanol specimens. Eyes reddish brown. Vertex, pronotum and elytra partially hyaline greyish brown. Legs pale yellow. Thorax and ventrites dark brown-black, keel and lateral margins of connexivum pale yellow.

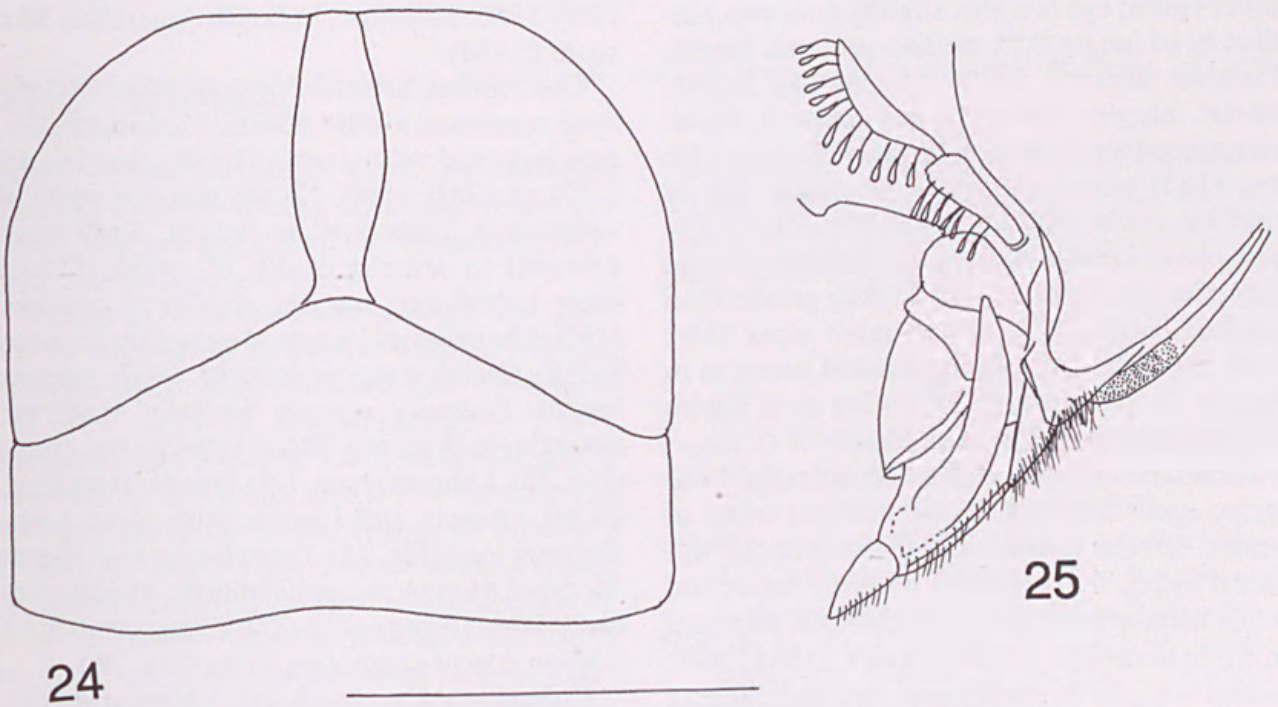
Remarks. These specimens key out to couplet 89 in Brooks (1951), *Anisops exigera* Horvath, which is a smaller species, with males 4.3-4.5



Figs 20-21. *Anisops hayesi* sp. nov. paratype male: 20, front leg, inner view, slide mounted. Scale line 1mm. 21, stridulatory comb. Scale line 0.5mm.



Figs 22-23. *Anisops hayesi* sp. nov. paratype male: 22, rostral prong; 23, head and pronotum, dorsal view. Scale line 0.5mm.



Figs 24-25. *Anisops ungarinyin* sp. nov. Holotype male: 24, head and pronotum, dorsal view; 25, rostral prong. Scale line 1mm.

mm long and having a short rostral prong. In Lansbury (1969), *A. elkedraensis* keys out as *A. paraexigera* Lansbury, which has a small group of proximal setae along the inner margin of the front tarsus; *A. elkedraensis* sp. nov. differs in having a row of five prominent setae along the front tarsus.

Etymology. The species is named for the type area, Elkedra River.

Anisops hayesi sp. nov.
(Figs 20-23)

Type material. HOLOTYPE - male. NTM I. 584, Northern Territory, Alice Springs, John Hayes Rock-hole near Trephina Gorge, 27 April 1979, coll. I. Lansbury. PARATYPES - 3 males, 5 females, same data as holotype, in Oxford, 1 male, 2 females, NTM I. 585-586, same data as for holotype, in Northern Territory Museum.

Additional material. Northern Territory, Alice Springs, Standley Chasm, 50 km west of Alice Springs, 16 April 1985, coll. F.S. Truxal, 1 male, in Oxford.

Description. Males 7.63 mm long, greatest width 2.49 mm, females 7.50 mm long, greatest width 2.49 mm.

Structure of male. Viewed dorsally, head large, eyes voluminous and extending beyond anterior margin of vertex (Fig. 23). Greatest head width 0.96x pronotal humeral width, 8.58x anterior width of vertex and 3.2x head length. Synthlipsis subequal to anterior width of vertex. Dorsal inner lateral eye margins slightly concave. Median head length 0.7x median pronotal length. Pronotal humeral width 2.4x median length, lateral margins diverging and concave. Posterior margin medially emarginate. Pronotum with two (1+1) groups of minute pits either side of midline. Facial tubercle raised (Fig. 22) basally just above labrum with a dark brown pointed tubercle. Basal labral width slightly greater than median length with almost erect stout short hairs down part of rostrum. Rostral prong as in Figure 22. Chaetotaxy of front leg as in Figure 20. Stridulatory comb as in Figure 21.

Structure of female. Viewed dorsally, head large, eyes extending beyond anterior width of vertex. Greatest head width 0.89x pronotal humeral width, 7.14x anterior width of vertex and 3.30x median head length. Synthlipsis subequal in width to anterior width of vertex. Dorsal inner lateral margins of eyes almost straight. Median head length 0.62x median pronotal length. Pronotal humeral width 2.30x median length.

Lateral margins diverging, straight; posterior margin almost straight. Facial tubercle slightly raised. Basal labral width broader than median length. Frons lined with fine long hairs extending to facial tubercle, labrum with semi-erect short hairs.

Coloration. Eyes black. Vertex, pronotum and scutellum greyish with brown infuscations. Hemelytra hyaline, appearing dark due to brown-black dorsum showing through. Thorax ventrally yellowish brown, ventrites shining black. Legs yellowish brown, mid-femora with elongate dark brown infuscations.

Remarks. This species keys out to couplet 53 in Brooks (1951), *Anisops windi* Brooks and *A. philippinensis* Brooks; *A. hayesi* differs from both species by its much larger size and the tubercle on the lower margin of the facial tubercle. In Lansbury (1969), it keys out to couplet *A. windi* and *A. tasmaniaensis* Brooks; the projection on the facial tubercle distinguishes *A. hayesi* from these and all other described Australian species.

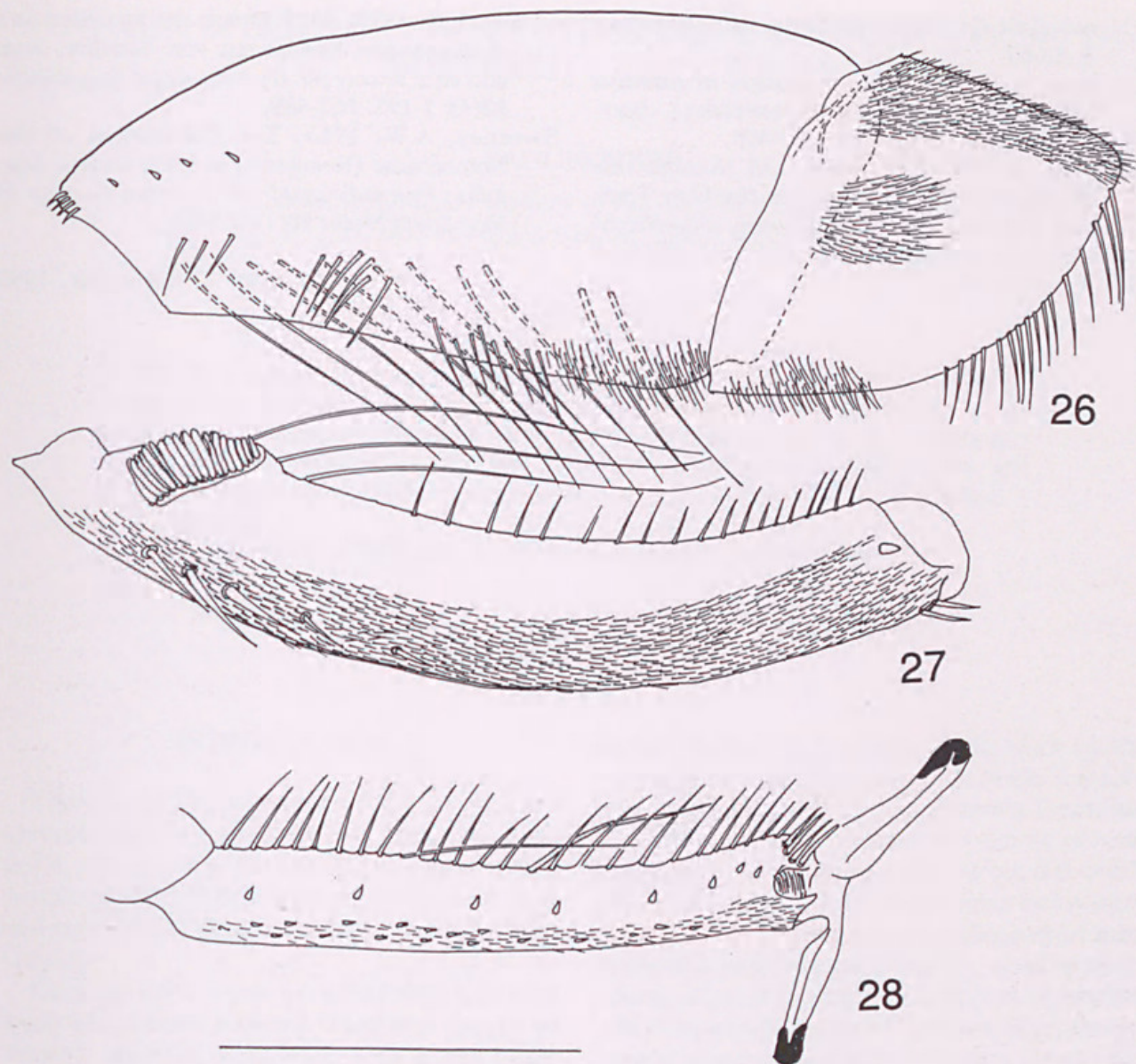
Etymology. The species is named for the type area, John Hayes Rockhole, near Trephina Gorge.

Anisops ungarinyin sp. nov.
(Figs 24-28)

Type material. HOLOTYPE - Western Australian Museum (WAM)94/710, male, Western Australia, Kimberley region, 28.7 km from Barnett River Crossing, Phillips Gorge, 3 February 1985. Holotype, in South Australian Museum (SAM).

Description. *Structure of male.* Male 6.05 mm long, maximum width 1.82 mm. Viewed dorsally, eyes large and voluminous. Greatest head width 1.03x pronotal width, 12.50x anterior width of vertex and 3.60x median length. Synthlipsis subequal to anterior width of vertex. Dorsal inner lateral eye margins shallowly concave. Median head length subequal to median pronotal length, lateral margins straight, 0.60x median length. Posterior margin medially shallowly emarginate (Fig. 24). Facial tubercle not raised (Fig. 25). Labrum short, 1.5x broader than long. Facial tubercle and labrum with short hairs. Rostrum long (Fig. 25). Front femur as in Figure 26, front tibia moderately spinose, stridulatory comb with 18 pegs (Fig. 27). Front tarsus with median row of prominent setae (Fig. 28).

Coloration. Eyes black with irregular yellowish brown blotches. Vertex, pronotum and scutellum pale creamy yellow. Hemelytra hyaline,



Figs 26-28. *Anisops ungarinyin* sp. nov. holotype male. Front leg, slide mounted, inner view: 26, femur; 27, tibia; 28, tarsus. Scale line 0.5mm.

dorsal abdominal bluish-black pigmentation showing through. Thorax yellowish brown centrally, centrites black, keel and connexival margins pale yellow, legs yellow.

Remarks. *Anisops ungarinyin* sp. nov. keys out to couplet 55 in Brooks (1951), *Anisops doris* Kirkaldy and *A. tasmaniaensis*. The former has 50+ pegs in the stridulatory comb; *tasmaniaensis* is larger, 7.5-7.9mm long and is confined to Tasmania and a few localities in Victoria and New South Wales. In Lansbury (1969) *A. ungarinyin* keys out as *Anisops occipitalis* Breddin, the basal rostral segment of *A. occipitalis* is wider than the base of the fourth segment, the synthlipsis is about half the anterior width of the vertex compared with the subequal synthlipsis/anterior width of the vertex of *Anisops ungarinyin* sp. nov.

Etymology. The specific name '*ungarinyin*' refers to both the language and tribal name of the Aboriginal people of the central Kimberley region, Western Australia.

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