

## Accessory Publication

# The Mesoveliidae, Hebridae, and Hydrometridae of Australia (Hemiptera, Heteroptera, Gerromorpha) with a reanalysis of the phylogeny of semiaquatic bugs

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## Abstract

The semiaquatic bugs (Hemiptera-Heteroptera, infraorder Gerromorpha), comprising water striders and their allies, are familiar inhabitants of water surfaces in all continents. Currently, the world fauna has more than 1,900 described species classified in eight families and 165 genera. A phylogenetic analysis using maximum parsimony was performed on a dataset comprising 56 morphological characters scored for 24 exemplar genera covering all families and subfamilies of Gerromorpha. The phylogenetic relationships found concur with those presented by Andersen (1982) except that the relationships between some subfamilies of Veliidae and Gerridae are unresolved. The Australian fauna of Gerromorpha comprises six families, 30 genera, and 123 species. One third of the genera and more than 80% of the species are endemic to Australia. Previously, we have covered all Australian species of the families Gerridae, Hermatobatidae, and Veliidae. The present paper deals with the families Hebridae, Hydrometridae, and Mesoveliidae. We offer redescriptions or descriptive notes on all previously described species, describe *Mesovelia ebbenielsenii* sp. nov. (Mesoveliidae), *Austrohebrus apterus*, gen. et sp. nov., and *Hebrus pilosus* sp. nov. (Hebridae), and synonymise *Hebrus woodwardi* Lansbury, syn. nov. (Hebridae) and *Hydrometra halei* Hungerford and Evans, syn. nov. (Hydrometridae). We present keys for the identification of genera and species, and map the distribution of all species. We also give a key for the identification of the families of Gerromorpha known from Australia.

## Abbreviations

Specimens were borrowed from the following collections. The acronyms are used in the 'Material examined' sections.

AMS	Australian Museum, Sydney, Australia.
ANIC	Australian National Insect Collection, CSIRO, Canberra, Australia.
BMNH	Natural History Museum (formerly British Museum, Natural History), London, UK.
BPBM	Bernice P. Bishop Museum, Honolulu, USA.
CALM	Western Australian Department of Conservation and Land Management, Perth, Australia.
CAS	California Academy of Science, San Francisco, USA.
DNRQ	Department of Natural Resources, Queensland, Australia.
DSIR	Department of Scientific and Industrial Research, Auckland, New Zealand (now Auckland Museum).
HNHM	Hungarian Natural History Museum, Budapest, Hungary.

ILC	Ivor Lansbury collection, Oxford, UK.
JTPC	John T. Polhemus collection, Englewood, Colorado, USA.
MV	Museum Victoria, Melbourne, Australia.
NRS	Naturhistoriska Riksmuseet (Natural History Museum), Stockholm, Sweden.
NTMD	Northern Territory Museum & Art Galleries, Darwin, Australia.
NZAC	New Zealand Arthropod Collection, Landcare Research, Auckland, New Zealand.
QDPIM	Queensland Department of Primary Industries, Mareeba, Australia.
QMB	Queensland Museum, Brisbane, Australia.
SAMA	South Australian Museum, Adelaide, Australia.
SEMK	Snow Entomological Museum, University of Kansas, Lawrence, Kansas, USA.
UQIC	University of Queensland Insect Collection, Brisbane, Australia.
USNM	National Museum of Natural History, Smithsonian Institution, Washington, DC, USA.
WAM	Western Australian Museum, Perth, Australia.
ZMUC	Zoological Museum, University of Copenhagen, Denmark.

*Material examined*

Localities are arranged in a north–south sequence for each state.

Family **MESOVELIIDAE** Douglas & Scott, 1867

Water treaders, pondweed bugs

***Austrovelia queenslandica*** Malipatil & Monteith, 1983

*Material examined*

*Holotype*. Apterous ♂, labelled "QUEENSLAND (NEQ), Mt Sorrow summit, Cape Tribulation, 19 Oct. 1980, G. B. Monteith" and "QM berlesate No. 261, 16.08S 145.26E, rainforest, 800 m, sieved litter" (QMB).

*Paratypes*. **Queensland**: 32♂, 43♀ apt., same label data as holotype (ANIC, BMNH, NTMD, QMB, SAMA, ZMUC); 1♀ apt., Roaring Meg Creek, 6km W of Cape Tribulation, 740 m, QM berlesate 448, rainforest sieved litter, 16.04S 145.24E, 5.x.1982, Monteith, Yeates & Thompson (QMB); 5♂, 4♀ apt., Roaring Meg Creek, 6 km W of Cape Tribulation, 740 m, QM berlesate 453, rainforest sieved litter, granite outcrops, 16.04S 145.24E, 5.x.1982, Monteith, Yeates & Thompson (QMB); 1♂, 2♀ apt., 0.5 km E of Mt Pieter Botte, QM berlesate 449, rainforest sieved litter, 16.05S 145.23E, 5.x.1982, Monteith, Yeates & Thompson (QMB); 5♂, 1♀ apt., 3 km W of Cape Tribulation, Site 6, 500 m, QM berlesate 422, rainforest sieved litter, 16.05S 145.27E, 19.ix.1982, Monteith, Yeates & Thompson (QMB); 1♂, apt., 3 km W of Cape Tribulation, Site 6, 500 m, QM berlesate 439, rainforest sieved litter, 16.05S 145.27E, 2.x.1982, Monteith, Yeates & Thompson (QMB); 1♂, 2♀ apt., 3 km W of Cape Tribulation, Site 6, 500 m, 16.05S 145.27E, 2.x.1982, Monteith, Yeates & Thompson (QMB); 1♂, 2♀ apt., 4.5-5.0 km W of Cape Tribulation, Top Camp, 760-780 m, QM berlesate 442, rainforest sieved litter, 16.05S 145.26E, 1.x.1982, Monteith, Yeates & Thompson (QMB); 1♂ apt., 4.5-5.0 km W of Cape Tribulation,

Top Camp, 760-780 m, QM berlesate 486, rainforest sieved litter, 16.05S 145.26E, 1.x.1982, Monteith, Yeates & Thompson (QMB); 1♂, 1♀ apt., 4.5-5.0 km W of Cape Tribulation, Top Camp, 760-780 m, QM berlesate 489, rainforest sieved litter, 16.05S 145.26E, 1.x.1982, Monteith, Yeates & Thompson (QMB); 1♀ apt., 4.5-5.0 km W of Cape Tribulation, Top Camp, 760-780 m, QM berlesate 490, rainforest sieved litter, 16.05S 145.26E, 1.x.1982, Monteith, Yeates & Thompson (QMB); 11♂, 13♀ apt., 4 km W of Cape Tribulation, Site 8, 720 m, QM berlesate 424, rainforest sieved litter, 16.05S 145.26E, 24.ix.1982, Monteith, Yeates & Thompson (QMB); 2♂, 3♀ apt., 4 km W of Cape Tribulation, Site 8, 720 m, QM berlesate 437, rainforest sieved litter, 16.05S 145.26E, 29.ix.1982, Monteith, Yeates & Thompson (QMB); 1♂ apt., 5 km W of Cape Tribulation, Site 10, 780 m, QM berlesate 432, rainforest stick brushing, 16.05S 145.26E, 29.ix.1982, Monteith, Yeates & Thompson (QMB); 20♂, 28♀ apt., 5 km W of Cape Tribulation, Site 10, 780 m, QM berlesate 435, rainforest sieved litter, 16.05S 145.26E, 20.ix.1982, Monteith, Yeates & Thompson (QMB); 7♂, 7♀ apt., 5 km W of Cape Tribulation, Site 10, 780 m, QM berlesate 485, rainforest sieved litter, 16.05S 145.26E, 29.ix.1982, Monteith, Yeates & Thompson (QMB); 1♂, 2♀ apt., 3.5 km W of Cape Tribulation, Site 7, 680 m, QM berlesate 440, rainforest sieved litter, 16.07S 145.27E, 2.x.1982, Monteith, Yeates & Thompson (QMB); 25♂, 17♀ apt., 3.5 km W of Cape Tribulation, Site 7, 680 m, QM Berlesate 482, rainforest sieved litter, 16.07S 145.27E, 2.x.1982, Monteith, Yeates & Thompson (QMB); 7♂, 7♀ apt., Mt Sorrow summit, Cape Tribulation, 800 m, QM berlesate 262, rainforest sieved litter, 16.08S 145.26E, 15.x.1980, Monteith, Yeates & Thompson (QMB); 3♂, 1♀ apt., Mt Sorrow summit, Cape Tribulation, 800 m, QM berlesate 256, rainforest sieved litter, 16.08S 145.26E, 15.x.1980, Monteith, Yeates & Thompson (QMB).

*Other material. Queensland:* 6♂, 2♀ apt., Mt Halcyon, 870 m, QM berlesate 864, rainforest litter, 16.03S 145.25E, 24.xi.1993, G. Monteith & H. Janetzki (QMB); 1♂ apt., 4 km W of Cape Tribulation, Site 8, 720 m, QM berlesate 538, rainforest sieved litter, 16.05S 145.26E, 23.iv.1983, G.B. Monteith & D.K. Yeates (QMB); 11 apt., 4 km W of Cape Tribulation, Site 8, 720 m, QM berlesate 497, rainforest sieved litter, 16.05S 145.26E, 29.xii.1982, G.B. Monteith (QMB); 2♂ apt., 5 km W of Cape Tribulation, Site 10, 780 m, QM berlesate 499, rainforest sieved litter, 16.05S 145.26E, 29.xii.1982, G.B. Monteith (QMB); 8♂, 1♀ apt., 2 nymphs, 5 km W of Cape Tribulation, Site 10, 780 m, QM berlesate 518, rainforest sieved litter, 16.05S 145.26E, i.1983, G.B. Monteith (QMB); 9♂, 5♀ apt., 2 nymphs, 5 km W of Cape Tribulation, Site 10, 780 m, QM berlesate 530, rainforest sieved litter, 16.05S 145.26E, 23.iv.1983, G.B. Monteith & D.K. Yeates (QMB); 2♂ apt., Cape Tribulation, Site 8, 750 m, QM berlesate 974, rainforest sieved litter, 16.05S 145.26E, 19.xi.1998, G.B. Monteith (QMB); 1♂, 1♀ apt., Mt Pieter Botte, summit, 950 m, QM berlesate 872, rainforest litter, 16.05S 145.24E, 21.xi.1993, G. Monteith & H. Janetzki (QMB); 2♂, 4♀ apt., Mt Sorrow Plateau, 750 m, QM berlesate 870, rainforest sieved litter, 16.05S 145.26E, 10.xii.1993, G. Monteith (QMB); 6♂, 1♀ apt., Mt Hemmant, 6 km SW of Cape Tribulation, 880 m, QM berlesate 543, rainforest sieved litter, 16.07S 145.25E, 25.iv.1983, G.B. Monteith & D. Cook (QMB); 8♂, 4♀ apt., Mt Hemmant, 6 km SW of Cape Tribulation, 880 m, QM berlesate 544, rainforest sieved litter, 16.07S 145.25E, 25.iv.1983, G. Monteith & D. Cook (QMB, ZMUC); 4♂, 2♀ apt., Mt Hemmant, 6 km SW of Cape Tribulation, 880 m, QM berlesate 545, rainforest sieved litter, 16.07S 145.25E, 25.iv.1983, G. Monteith & D. Cook (QMB).

*Mesovelia hungerfordi* Hale, 1926*Material examined*

*Lectotype.* Apterous ♂ labelled "Adelaide, H.M. Hale" and "Lectotype, *Mesovelia hungerfordi* Hale" (SAMA).

*Paralectotypes.* 1 ♀ apt., 2 ♂ macr., Adelaide, H.M. Hale (SAMA).

*Other material. New South Wales:* 1 ♂, 1 ♀ apt., Clarence River at Carnham Crossing EPA Survey - MRHI CLAR 17, 29.20S 152.32E, 9.x.1995, E. Turak (AMS, ANIC); 1 ♂ macr., Point Lookout, New England NP, 30.29S 152.25E, 12.ii.1984, I.D. Naumann (ANIC); 1 ♀ apt., Matheson, 29.44S 151.34E, 1.ii.1964, J.C. Cardale (UQIC); 1 nymph, 30 km N of Singleton, Mt. Royal State Forest, CL006, 32.11S 151.20E, 11.iii.1979, I. Lansbury (ANIC); 2 ♂, 2 ♀ apt., 30 km N of Singleton, Tuglo Wildlife Ref., CL005, dam, 32.11S 151.20E, 11.iii.1979, I. Lansbury (ANIC); 1 ♀ macr., Merimbula, 36.54S 149.56E, 1.ii.1993, E.C. Zimmerman (ANIC); 1 ♂ macr., Lachlan River u/s Cowra, EPA Survey - MRHI LACH 11, 33.53S 148.45E, 27.iii.1995, R. Cowell (AMS); 1 ♂ apt., Kara Creek, via Jindabyne, 900 m, CL0022, 36.21S 148.44E, 16.iii.1979, I. Lansbury (ANIC); 1 ♀ macr., Bogan River, K64735, 32.00S 147.18E, 1.i.1932, J. Armstrong (AMS); 1 ♀ macr., Lachlan River d/s Kiacatoo Bridge, EPA Survey - MHRI LACH 17, 33.03S 146.46E, 27.iv.1995, F. Laurenson (AMS); 1 ♂ apt., Poisoned Waterholes Creek, 3 km SW by W Narrandera, still waters pools with vegetation, 34.46S 146.31E, 26.xi.1993, T. Weir & W. Dressler (ANIC); 1 ♀ macr., Lachlan River, Murrin Bridge, EPA Survey - MRHI LACH 18, 33.12S 146.22E, 27.iii.1995, E. Turak (AMS); 3 ♂ apt., Gum Creek, 16 km W by S of Darlington Point, still water pools with vegetation, in creek bed, 34.36S 145.49E, 25.xi.1993, T. Weir & W. Dressler (ANIC); 11 ♀ apt., 16 nymphs, Yanga Creek, 7 km SE by S of Balranald, still muddy water, river overflow with vegetation, 34.42S 143.35E, 25.xi.1993, T. Weir & W. Dressler (ANIC); 12 nymphs, 2 km S Balranald, still waters pools with vegetation, 34.39S 143.34E, 25.xi.1993, T. Weir & W. Dressler (ANIC); 1 ♀ macr., Lake Menindee, 32.20S 142.20E, 17.iii.1953, N.B. Tindale (SAMA); 1 ♀ macr., Gol Gol, edge of flowing river, 34.11S 142.13E, 24.xi.1993, T. Weir & W. Dressler (ANIC). **Northern Territory:** 1 ♀ macr., Yuendumu, 22.15S 131.48E, 1.ii.1968, C. Watts (SAMA); 1 nymph, Ormiston Creek, above Ormiston Pound, West Macdonnells NP, 23.37S 132.46E, 10.iii.1995, T. Weir (ANIC); 1 ♂, 12 apt., 1 ♀ macr., Ormiston Gorge, West Macdonnells, CL0097, temporary pool, 23.37S 132.43E, 28.iii.1979, I. Lansbury (ANIC); 1 ♀ macr., Ormiston Gorge, West Macdonnells Nat. Park, at light, 23.38S 132.43E, 6.iii.1995, T. Weir (ANIC); 16 ♀ apt., 38 nymphs, Ormiston Creek, below Gorge, West Macdonnells NP, still pools in sandy creek bed with rocks, lots of algal growth, reeds, 23.38S 132.44E, 10.iii.1995, T. Weir (ANIC); 2 ♂, 1 ♀ apt., 1 ♀ macr., 2 nymphs, Ormiston Gorge, West Macdonnells Nat. Park, edge of large pool, vegetation at edge, 23.38S 132.43E, 8.iii.1995, T. Weir (ANIC); 4 ♂ apt., 2 nymphs, Finke River at Glen Helen Gorge, West Macdonnells NP, 23.41S 132.44E, 6.iii.1995, T. Weir (ANIC); 1 nymph, mound springs above Pioneer Creek, West Macdonnells NP, permanent mound spring, bulrushes, mossy growth, 23.41S 132.43E, 8.iii.1995, T. Weir (ANIC); 3 nymphs, Serpentine Gorge, West Macdonnells NP, permanent rocky pools, sandy bottom, overhanging and floating vegetation, 23.44S 132.59E, 8.iii.1995, T. Weir (ANIC); 2 ♀ apt., Ellery Gorge, 85 km W of Alice Springs, 23.46S 133.04E, 5.ix.1979, T. Weir (ANIC); 3 nymphs, Ellery Creek Big Hole, West Macdonnells NP, large pool, vegetation at edge, 23.47S 133.04E, 7.iii.1995, T. Weir (ANIC); 1 ♀ macr., 2 nymphs, Ellery Gorge, nr Alice Springs, West Macdonnells, CL0095, 23.47S 133.04E, 28.iv.1979, I. Lansbury (ANIC); 1 ♀ apt., 1 ♀ macr., Hugh River, 12.5 km SSE Paisley Bluff, flowing river, deep pools, grass at edges, sandy bottom, 23.49S 133.22E, 7.iii.1995, T.

Weir (ANIC); 3♂, 4♀ apt., 1♂ macr., 1 nymph, Palm Valley (Hermannsberg), CL0101, 23.57S 132.46E, 29.iv.1979, I. Lansbury (ANIC); 4♂, 1♀ apt., 1♂, 4♀ macr., 23 nymphs, Finke Gorge NP, Palm Valley, large pools, rocky creek bed, algal growth, grass at edge, bulrushes, 24.03S 132.43E, 14.iii.1995, T. Weir (ANIC); 1♂ apt., Finke Gorge NP, above old Ranger Station, temporary rocky pools, grass at edge, algal growth, 24.04S 132.46E, 12.iii.1995, T. Weir (ANIC); 1♂, 1♀ apt., 1♀ macr., 6 nymphs, Finke Gorge NP, Finke River at Palm Bend, large shallow pool in sandy & rocky river bed, grass at edge, algal growth, 24.04S 132.46E, 12.iii.1995, T. Weir (ANIC); 2♀ apt., 1♀ macr., 4 nymphs, Finke Gorge NP, Kanara Creek at the Oasis, permanent rock pools, palms, grass at edge, algal growth, 24.04S 132.44E, 12.iii.1995, T. Weir (ANIC); 1♂ macr., 8 nymphs, Finke Gorge NP, Little Palm Creek, rock pools, palms, algal growth, overhanging vegetation, 24.06S 132.46E, 13.iii.1995, T. Weir (ANIC); 1♂ apt., Finke Gorge NP, Finke River, permanent pool in river bed, grass at edge, bulrushes, algal growth, 24.09S 132.52E, 15.iii.1995, T. Weir (ANIC); 11 nymphs, Finke Gorge NP, Boggy Hole, large permanent pool in river bed, grass & bulrushes at edge, algal growth, 24.09S 132.52E, 15.iii.1995, T. Weir (ANIC). **Queensland:** 1♀ apt., 21 km W by N of Bertiehaugh, water sweep, billabong, 12.10S 142.19E, 14.viii.1993, P. Zborowski & J. Balderson (ANIC); 1♂ macr., Langi Lagoon, Mungkan Kandju Nat. Pk, at light, open forest, 13.27S 142.42E, 29.vi.1998, T. Weir (ANIC); 1♀ macr., Rocky River, via Coen, Cape York Pen., 13.49S 143.28E, 14.xii.1964, G. Monteith (UQIC); 1♀ apt., Muck Lagoon, Cape Melville, water, pH 2.8, 14.18S 144.26E, 7.vi.1994, B. Herbert & P. Graham (ANIC); 1♂, 1♀ apt., 1 nymph, Petersen Creek, Lake Tinaroo, 17.15S 145.34E, 1.viii.1992, E. Nielsen & A. Gillison (ANIC); 1♀ macr., Barron River, Plath Road crossing, Atherton district, 794 m, 17.23S 145.41E, 27.iv.1998, G. Cassis & S. Davies (AMS); 1♂, 2♀ macr., Normanton, at light, 17.40S 141.04E, 5.v.1963, P. Aitken & N. Tindale (SAMA); 2♀ macr., 15 ml [= 23 km] SW of Normanton, 17.49S 140.54E, 25.v.1972, G.B. & S.R. Monteith (UQIC); 1♀ macr., Leichhardt Falls, 35 mi [= 50 km] SE of Burketown, 18.13S 139.53E, 24.v.1972, G.B. & S.R. Monteith (UQIC); 2♂, 1♀ apt., 1♂ macr., Murrays Spring, 8 km W by N Musselbrook Mining Camp, large pool in rocky creek bed, sandy bottom, water lillies, Pandanus, algal growth, 18.35S 138.03E, 9.v.1995, T. Weir (ANIC); 1♀ macr., 8 km SE by E of Musselbrook Mining Camp, at light, 18.38S 138.11E, 11.v.1995, T. Weir (ANIC); 1♀ macr., 23 km ESE Musselbrook Mining Camp, Colless Creek, at light, 18.40S 138.20E, 9.v.1995, I.D. Naumann (ANIC); 2♀ apt., 1♀ macr., 2 nymphs, Ridgepole Waterhole 24 km ESE Musselbrook, large permanent waterhole, water lillies, nardoo, algal growth, 18.40S 138.20E, 11.v.1995, T. Weir (ANIC); 1♀ macr., 2 km WNW of Riversleigh HS, Gregory River, black light, 19.01S 138.43E, 28.iv.1986, J.A. Forrest (SAMA); 1♀ macr., 1.5 km WNW of Riversleigh HS, at Gregory River ford, black light, 19.01S 138.43E, 30.iv.1986, J.A. Forrest (SAMA); 2 nymphs, Ayr, stagnant water, 19.34S 147.24E, 1.vi.1953, T.E. Woodward (UQIC); 12♀ macr., 11 km SSE of Edgbaston HS, 28 km NE of Aramac, artesian spring, 22.47S 145.26E, 4.v.1988, W. Zeidler (SAMA); 1♀ macr., White Mountains NP, "Rugged Gorge" camp, at light, 20.23S 144.47E, 31.iii.2000, T. Weir (ANIC); 1♂, 1♀ apt., 1♀ macr., 3 nymphs, Cedar Creek Falls via Proserpine, 20.24S 148.43E, 5.xi.1969, T. Weir (ANIC); 1♂ apt., 1♂ macr., White Mountains NP, "Foot Paddock Dam", still pools, murky, sedges, vegetation, rocky base, logs, algae, full sun, 20.27S 144.49E, 5.iv.2000, T. Weir (ANIC); 2♀ apt., Pelican Creek at Myuna Road, DNRQ SITE 1202021, macrophytes, 20.36S 147.45E, 8.xi.1994, DNRQ (DNRQ); 1♂ macr., Finch Hatton Gorge, via Finch Hatton, 21.04S 148.38E, 3.xi.1969, T. Weir (ANIC); 5♂, 2♀ apt., Rockhampton, Botanic Gardens, lagoon, 23.22S 150.31E, 6.iv.1969, T. Weir (ANIC); 7♂, 6♀ macr., Dawson River at Capricorn Highway, 23.48S 149.46E, 5.iv.1969, T. Weir (UQIC); 1♀ macr., Blackdown Tableland via Dingo, 850-950m, 23.48S 149.08E, 11.iv.1996, G. Monteith (QMB); 6♂, 3♀ apt., 1♀ macr., Glassford Creek, Monto-Many Peaks Rd (as

Gladford Creek), 24.35S 151.20E, 18.xi.1957, T.E. Woodward (UQIC); 3♂, 2♀ macr., Eidsvold, 25.22S 151.07E, 15.ix.1929, collector unknown (ANIC); 1♀ apt., 1 nymph, Three Moon Creek, Cania Gorge, 24.43S 151.01E, 19.xi.1957, T.E. Woodward (UQIC); 1♀ macr., Theodore, 24.57S 150.05E, 13.xii.1950, S. Barker (UQIC); 1♂, 1♀ macr., Dargonelly Rockhole, Mt Moffatt NP, 25.02S 147.54E, 27.ii.1996, G. Monteith & C. Burwell (QMB); 4♂, 2♀ macr., Carnarvon Gorge, 25.03S 148.12E, 29.v.1954, T.E. Woodward (UQIC); 1♂, 2♀ apt., 2 nymph, Burnett River at Mount Lawless, DNRQ SITE 136002D, 25.32S 151.39E, 18.x.1994, DNRQ (DNRQ); 4♀ macr., Ward River, via Charleville, 26.20S 146.05E, 9.iv.1971, G.B. Monteith (UQIC); 1 nymph, Imbil State Forest, 26.28S 152.41E, 5.xi.1957, T.E. Woodward (UQIC); 1♂ apt., 2 nymph, Brisbane River, west branch, xing 26, DNRQ SITE 1430050, amongst macrophytes, 26.35S 152.10E, 21.x.1994, DNRQ (DNRQ); 1♀ apt., Brisbane River, west branch, xing 26, DNRQ SITE 1430050, 26.35S 152.10E, 21 Oct, 1994, DNRQ (DNRQ); 3♂♀, 2 nymphs, Condamine River at Chinchilla Weir, DNRQ SITE 4223006, 26.48S 150.41E, 30.iii.2001, DNRQ (DNRQ); 2♂, 6♀ macr., Kenilworth State Forest, 26.36S 152.44E, 1.iv.1969, B. Cantrell (UQIC); 1♀ apt., Yarraman, 26.51S 151.59E, 20.iv.1957, S. Sekhon (UQIC); 1♀ apt., South Pine River via Samford, stagnant pools, 27.22S 152.22E, 16.ii.1969, T. Weir (ANIC); 1♂, 12 macr., Highvale, 27.23S 152.48E, 31.v.1958, D.H. Mackenzie (UQIC); 1♂, 3♀ apt., 1 nymph, Ashgrove, Brisbane, Walton Bridge, 27.27S 152.59E, 3.v.1960, I.C. Yeo (UQIC); 1♂ apt., Ashgrove, 27.27S 152.59E, 9.ii.1960, K. Korboot (UQIC); 23♂, 18♀ apt., 16♂ 5♀ macr., 8 nymphs, Ashgrove, Brisbane, Walton Bridge, 27.27S 152.59E, 3.v.1960, T.E. Woodward (UQIC); 1♀ macr., Fernvale, 27.27S 152.39E, 17.viii.1966, I.D. Galloway (UQIC); 1♀ macr., Fernvale, 27.27S 152.39E, 17.viii.1966, B.A. Franzmann (UQIC); 1♂ apt., Brisbane River at Savages, DNRQ SITE 143001C, 27.27S 152.40E, 11.xi.1996, DNRQ (DNRQ); 1♂ apt., Brisbane, 27.28S 153.02E, 9.iii.1958, J. Martin (UQIC); 1♀ apt., Brisbane, 27.28S 153.02E, 20.vii.1962, T. Brooks (UQIC); 1 nymph, Brisbane, 27.28S 153.02E, 23.x.1962, B. Willson (UQIC); 1♀ apt., Brisbane, 27.28S 153.02E, 15.v.1956, H.J. Lavery (UQIC); 1♂ apt., Brisbane, 27.28S 153.02E, 1.x.1962, E.A. Bernays (UQIC); 1♀ apt., Brisbane, 27.28S 153.02E, 2.i.1963, G. Monteith (UQIC); 1♂, 2♀ apt., 1♂ macr., Yerrool Creek, North Stradbroke Island, 27.29S 153.25E, 28.ii.1969, T. Weir (UQIC); 1♀ macr., Dunwich, North Stradbroke Island, 27.30S 153.24E, 15.iv.1960, J. Bryan (UQIC); 1♂ apt., Brookfield, 27.30S 152.55E, 21.iii.1965, T. Weir (UQIC); 1♀ apt., Cleveland, 27.32S 153.17E, 20.v.1954, W. Yarrow (JTPC); 3♂, 5♀ apt., 4 nymph, Brisbane, Moggill, CL0154, farm dam, 27.34S 152.53E, 6.vi.1979, I. Lansbury (ANIC); 1 nymph, Moggill, Brisbane, 27.34S 152.53E, 25.iv.1959, T.E. Woodward (UQIC); 1 nymph, Bundamba, 27.36 152.49E, 14.vi.1952, J. Davis (UQIC); 1♀ apt., 1♀ macr., Tamborine [as Tambourine], 27.53S 153.08E, 19.viii.1959, K. Korboot (UQIC); 1♂, 1♀ apt., Canal Creek at Main Road, DNRQ SITE 4223063, 27.58S 151.35E, 10.v. 1995, DNRQ (DNRQ); 1♂, 1♀ macr., South Emu Creek, via Emu Vale, 28.13S 152.25E, 22.v.1969, T. Weir (UQIC); 1♂ macr., Springbrook, Border Range, c. 2700ft [= 900 m], 28.14S 153.16E, 10 Mar, 1955, collector unknown (UQIC); 1♀ apt., Stanthorpe, 28.40S 151.56E, 23.iii.1963, A. Macqueen (UQIC); 8 nymphs, Bokhara River at NSW border, DNRQ SITE 4222049, 28.57S 147.46E, 21.iii.2001, DNRQ (DNRQ). **South Australia:** 1♀ apt., Coward Springs, artesian bore stream, 29.24S 136.47E, 22.iii.1968, T. Glover (SAMA); 1♀ apt., Coward Springs, at margin of water, 29.24S 136.47E, viii.1930, SA Museum Expedition (SAMA); 1♂, 6♀ apt., 1 nymph, Aroona Dam near Copley, mostly in water, 30.35S 138.22E, 25.x.1966, G.F. Gross (SAMA); 1♀ apt., Flinders Ranges, Bunyeroo Rock, 1 km E of ABC Range, 31.25S 138.33E, 9.v.1981, J.A. Forrest (SAMA); 1♀ macr., 4 km S of Frogamerry Dam, Calperum Stn, temporary pool, 33.54S 140.31E, 16.iii.1997, E.S. Nielsen (ANIC); 1♂ apt., Ral Ral Creek, Calperum Stn, 15 km N by W Renmark, slow flowing creek, murky water, silty bottom, grassy edges, sticks, some floating

vegetation, 34.03S 140.43E, 23.v.1996, T. Weir & K. Pullen (ANIC); 1♂ apt., Roonka Stn, Blanchetown, edge of Cumbunga Creek, shallow water, 34.17S 139.38E, 12.v.1973, R. Inns (SAMA); 1♀ apt., 7 nymphs, Murray River, 5 km from Big Bend, near Swan Reach, CL0078, 34.34S 139.36E, 12.iv.1979, I. Lansbury (ANIC); 6♂, 3♀ apt., Adelaide, 34.56S 138.36E, no date, H.M. Hale (SAMA); 1♂ macr., Warradale, 8 mi [= 12 km] SW Adelaide, mv light, 35.00S 138.32E, 12.i.1974, P.B. McQuillan (SAMA); 9♂, 5♀ apt., 1♂ macr., 1 nymph, Murray Bridge, 35.07S 139.16E, date unknown, H.M. Hale (SAMA); 2 nymphs, Lake Albert, 5 km from Meningie, CL0079-80, 35.38S 139.18E, 15.iv.1979, I. Lansbury (ANIC); 1♀ apt., Myponga, 35.23S 138.28E, date unknown, H.M. Hale (SAMA); 1♂, 2♀ apt., Kangaroo Island, river beyond Karatta Kingscote Rd, CL0073, 35.59S 136.56E, 9.iv.1979, I. Lansbury (ANIC); 1♂, 1♀ apt., 1 nymph, Struan near Naracoorte, Mosquito Creek, CL0084, 37.06S 140.47E, 23.iv.1979, I. Lansbury (ANIC); 1♂, 4♀ apt., Mt Gambier, Piccaninie Blue Pond, near Glenelg River, CL0081, 38.03S 140.57E, 20.iv.1979, I. Lansbury (ANIC). **Tasmania:** 6♂, 3♀ apt., 3 nymphs, Fingerpost Road, F.B.A., 41.26S 145.36E, 5.iv.1974, Garry L. Bennison (ANIC); 1♀ macr., South Esk River at Mathinna, ex trout gut, 41.29S 147.53E, no date and collector (ANIC); 1♀ apt., Pawleena Dam, upper Sorrell River, small lake, 42.43S 147.35E, 28.ii.1973, T. Walker (ANIC); 3♀ apt., Coal River at Richmond, 42.44S 147.26E, 29.v.1972, T. Walker (ANIC). **Victoria:** 1♀ macr., 3 mi [= 4.5 km] S of Hattah, 34.49S 142.16E, 6.iii.1971, E.G. Matthews (SAMA); 1♂, 1♀ apt., Lilydale, 37.46S 145.21E, 13.iii.1976, A. Fletcher (ANIC); 3♂, 1♀ apt., 1♀ macr., Glenmaggie Reservoir, Gippsland, farm pond, 37.55S 146.47E, 18.ii.1977, M. Malipatil (NTMD); 11♂, 6♀ apt., 4 nymphs, near Neerim, Hammano Rd, CL0028, 37.58S 145.57E, 25.iii.1979, I. Lansbury (ANIC); 5♂, 3♀ apt., 3 nymphs, Bunyip River, Labertouche North, CL0030, farm dam, 38.03S 145.48E, 25.iii.1979, I. Lansbury (ANIC); 1♂ apt., 1 nymph, Barwon River at Inverleigh, billabongs, CL0042-43, 38.06S 144.03E, 27.iii.1979, I. Lansbury (ANIC); 3♂, 7♀ apt., 5 nymphs, Lake Purrumbete, CL0032, 38.17S 143.14E, 26.iii.1979, I. Lansbury (ANIC); 2♂ apt., 2 nymphs, 2 km from Barwon Downs, CL0040, farm dam, 38.28S 143.45E, 27.iii.1979, I. Lansbury (ANIC); 2♀ apt., Bass in Gippsland, CL0056, 38.29S 145.26E, 30.iii.1979, I. Lansbury (ANIC); 1♂, 14♀ apt., Bass Region, 10 km N of Wonthaggi, CL0057, farm dam, 38.32S 145.35E, 30.iii.1979, I. Lansbury (ANIC). **Western Australia:** 1♀ apt., Wannagunna Spring, Brumby Creek, CALM SITE ASH13, 24.18S 118.52E, 19.v.1998, CALM (CALM); 1♀ apt., Roleystone, Perth, on surface of stagnant rock pool, 32.07S 116.04E, 1.i.1977, A. Page (WAM).

### ***Mesovelvia hackeri* Harris & Drake, 1941**

#### *Material examined*

*Holotype.* Macropterous ♂, labelled "Asharove [= Ashgrove], 2-3-31, H. Hacker", "C. J. Drake Coll. 1956", and "HOLOTYPE, By C. J. Drake, *Mesovelvia hackeri* D. & H." (USNM).

*Other material examined.* **New South Wales:** 1♀ apt., Peacock Creek, edge, 28.40S 152.43E, NSW EPA Survey, MRHI CLAR 15, 8.v.1995, E. Turak (AMS); 1♂ apt., Cataract River, edge, 28.56S 153.14E, NSW EPA Survey, MRHI CLAR 05, 10.x.1995, J. Ling (AMS); 1 nymph, Sandon River, edge, 29.53S 153.15E, NSW EPA Survey, MRHI CIAR 27, 5.viii.1995, E. Turak (AMS); 1♂, 1♀ apt., Wooli Wooli R., edge, 30.17S 153.10E, NSW EPA Survey, MRHI CLAR 28, 8.v.1995, J. Ling (AMS); 1♀ apt., Cowarra Creek, Houston Mitchell Drive, macrophytes, 31.32S 152.48E, NSW EPA Survey, MRHI HAST 01, 10.x.1995, J. King (AMS); 3 nymphs, Cowarra Creek, Houston Mitchell Drive, Edge, 31.32S 152.48E, NSW EPA Survey, MRHI HAST 01,

5.iv.1995, F. Laurenson (AMS); 1 nymph, Holey Flat Creek, u/s Moorland, Edge, 31.46S 152.38E, NSW EPA Survey, MRHI MANN02, 6.iv.1995, E. Turak (AMS); 1♂ apt., 1 nymph, Tommy Owen's Creek, Brimbin Res., edge, 31.49S 152.26E, NSW EPA Survey, MRHI MANN07, 7.iv.1995, E. Turak (AMS); 1♂ apt., Tommy Owen's Creek, Brimbin Res., edge, 31.49S 152.26E, NSW EPA Survey, edge, MRHI MANN07, 11.x.1995, N. Waddell (AMS); 1♀ apt., Kooringhat Creek, Gilfillians Road, edge, 31.59S 152.31E, NSW EPA Survey, MRHI MANN01, 5.iv.1995, E. Turak (AMS); 5♂, 9♀ apt., 3 nymphs, Koorainghat Creek, Gilfillians Road, edge, 31.59S 152.31E, NSW EPA Survey, MRHI MANN01, 4.xii.1995, J. King (AMS, ANIC). **Norfolk Island:** 1♂, 1♀ apt., Burnt Pine, 10.xi.1967, G. Kuschel (DSIR) (*Mesovelia hackeri* Harris & Drake, det. J.T. Polhemus). **Queensland:** 1♂ apt., Cairncross Nat. Pk. via Maleny, 26.46S 152.51E, 16.iv.1965, B. Cantrell (UQIC); 1♀ apt., Maleny, 26.46S 152.51E, 16.iv.1965, R.W. Steele (UQIC); 1♀ apt., Maleny, 26.46S 152.51E, 17.iv.1965, T. Weir (UQIC); 1♂ apt., 1 nymph, Cedar Creek at Samford, CL1057, 27.22S 152.53E, 7.vi.1970, I. Lansbury (ANIC); 1♂ apt., Yerrol Creek., North Stradbroke Island, 27.29S 153.25E, 28.ii.1969, T. Weir (UQIC); 1♀ apt., Brisbane, 27.28S 153.02E, 2.vi.1957, Haseler (UQIC); 1♀ apt., Punakitere, 14.ii.1950, R.A.C. (UQIC). **New Zealand:** 1♂, 1♀ apt., Mangonui Co., North Island, on streamlet S. end Te Weraki Swamp, S. of Cape Reinga, 34.28S 172.40E, 14.xii.1989, K. A. J. Wise (JTJC; exchange from DSIR); 1♂, 1♀ apt., Auckland City, Newmarket Park Pond; 36.52S 174.47E, 11.vi.2002, S. E. Thorpe (NZAC); 1♂ macr. (dealated), AK, Waitakera Ra., Lr. Waitakera Sta., drift, 36.58S 174.31E, 22-23.iv.1974, D. R. Towns (JTJC; exchange from DSIR).

### *Mesovelia stysi* Polhemus & Polhemus, 2000

#### *Material examined*

*Holotype.* Apterous ♂ labelled "Papua New Guinea, Western Prov., Bossett's Lagoon, in Bosio Grass, 25 April 1986, Kent Hortle" (USNM).

*Paratypes.* **Papua New Guinea:** 1♂ apt., 3 nymphs (not paratypes), Western Prov., Bossett's Lagoon, in Bosio Grass, 25.iv.1986, Kent Hortle (JTJC) (male genitalia missing).

*Other material.* **Northern Territory:** 1♀ macr., 5 km NNW of Cahills Crossing (East Alligator R.), 12.23S 132.57E, 8.vi.1973, T. Weir & A. Allwood (ANIC); 1♂, 1♀ apt., nymphs, Kakadu NP., Sorcery Rock, nr Cannon Hill, in swamp, 12.23S 132.57E, 25.vi.1980, M.B. Malipatil (NTMD); 2♂ macr., Kapalga, CSIRO HQ, MV light, 12.40S 132.22E, 19.vii.1979, G. Monteith & D. Cook (QMB); 1♀ macr., 16 km E by N of Mt. Cahill, 12.50S 132.51E, 13.vi.1973, R.L. Kitching (ANIC); 2♂, 1♀ apt., 2♂, 2♀ macr. (2♂, 1♀ dealated), Yellow Waters, Nourlangie Ck, Kakadu NP, deep billabong with fringing *Ludwigia* and water lillies, 12.54S 132.31E GPS, 14.vii.1994, T. Weir, A. Roach (ANIC); 11♂, 22♀ macr., 10 mi [= 15 km] E of Daly River, at light, 13.45S 130.50E, 28.vi.1972, B.K. Head (SAMA); 1♀ macr., 48 mi [= 70 km] SW of Daly River, 14.11S 130.08E, 22.viii.1968, M. Mendum (ANIC); 1♀ macr., 34 mi [= 50 km] NW of Dorrisvale HS, 14.13S 130.55E, 16.viii.1968, M. Mendum (ANIC). **Queensland:** 1♂, 3♀ macr., 2 km NNE of Mt Tozer, 12.44S 143.13E, 3.vii.1986, T. Weir & A. Calder (ANIC); 52♂, 80♀ macr., Langi Lagoon, Mungkan Kandju Nat. Pk, at light, openforest, 13.27S 142.42E, 29.vi.1998, T. Weir (ANIC); 1♂ apt., Muck Lagoon, Cape Melville, water pH 2.8, 14.18S 144.26E, 7.vi.1994, B. Herbert, P. Graham (ANIC); 1♂ apt., 1♂, 1♀ macr. (dealated), Holroyd River, lagoon, 14.22S 142.27E, 14.ix.1993, P. Zborowski & S. Shattuck (ANIC); 1♂ apt., Dark Hole, Edward R., 14.46S 142.20E, 31.v.1994, B. Herbert & P. Graham (ANIC); 1♂ apt., Catfish Creek, Lakefield NP (Catfish



waterhole), waterhole with water lillies, 15.04S 144.17E, 29.x.1992, T. Weir, P. Zborowski (ANIC); 3♀ macr., Hann R. 73 km NW by W of Laura, 15.12S 143.52E, 27.vi.1986, T. Weir & A. Calder (ANIC); 1♀ macr., Christmas Creek, 15 km W of Fairview via Laura, 15.30S 144.09E, 26.vi-1975, G. B. Monteith (QMB); 2♂, 1♀ apt., Ridgepole Waterhole, 24 km ESE of Musselbrook Mining Camp, large permanent waterhole, water lillies, nardoo, algal growth, 18.40S 138.20E, 11.v.1995, T. Weir (ANIC); 1♀ apt., Louie Creek Xing, Lawn Hill NP, 18.46S 138.31E, 17.v.1995, T. Weir (ANIC); 1♀ macr., 2 km WNW Riversleigh HS, nr Gregory River, blacklight, 19.01S 138.43E, 28.iv.1986, J.A. Forrest (SAMA); 1♀ macr., 1.5 km WNW Riversleigh HS, at Gregory River ford, blacklight, 19.01S 138.43E, 30.iv.1986, J.A. Forrest (SAMA). **Western Australia:** 1♀ apt., Lake Kununurra, Ord River, CALM 19, 15.46S 128.44E, CALM (ANIC).

*Mesovelia ebbenielseni*, Andersen & Weir, sp. nov.

*Material examined*

*Holotype.* Apterous ♂, labelled "10.56S 142.23E QLD, Burster Creek, 17 Oct. 1992, T. Weir, P. Zborowski, reedy pond in creek" (ANIC).

*Paratypes:* **Northern Territory:** 1♂ macr., Arnhem Highway, Flying Fox Creek, CL0134, 12.42S 132.20E, 17.v.1979, I. Lansbury (ANIC); 1♂ macr., Arnhem Hwy, Leaning Tree Lagoon, near Darwin, CL0126, 12.43S 131.25E, 17.v.1979, I. Lansbury (ANIC); 1♂ macr., 4 miles [= 6 km] SW of Finnis River Station HS, 12.53S 130.32E, 28.vii.1971, T. Weir & A. Allwood (ANIC); 1♂ macr. (dealated), 4 ml [= 6 kmm] SW Finnis River Station HS, 12.53S 130.32E, 28.vii.1971, T. Weir & A. Allwood (ANIC); 1♂, 12 macr., Giyamungkurr (Black Jungle Spring), Kakadu Nat. Pk, narrow deep billabong with fringing Pandanus & grass & water lillies, 13.03S 132.10E, 14.vii.1994, T. Weir & A. Roach (ANIC); 1♂ macr., Tolmer Falls, Litchfield Nat. Pk, flowing creek with pools, rocky edges, 13.12S 130.43E, 18.vii.1994, T. Weir & A. Roach (ANIC); 2♂ macr., Douglas Hot Springs Nature Park, Douglas R., pools in flowing river, algal growth & logs, 13.46S 131.26E, 20.vii.1994, T. Weir & A. Roach (ANIC); 1♂ macr., 4 km S by E Jarrnarm, Keep River NP, deep billabong with waterlillies and fringing grass, 15.48S 129.07E, 27.v.2001, T. Weir & P. Bouchard (ANIC); 1♀ macr., 20.5 km N by E Bullita, Gregory NP, shallow pools in flowing creek, muddy bottom, vegetation, 15.56S 130.28E, 23.v.2001, T. Weir & P. Bouchard (ANIC); 4♂, 5♀ apt., Cockatoo Lagoon, Keep River NP, deep billabong with waterlillies and fringing grass, 15.59S 129.02E, 23.vii.1994, T. Weir & A. Roach (ANIC); 1♀ macr., Limestone Creek at Limestone Gorge, Gregory NP, flowing creek, pools, rocky limestone bottom, leaves, debris, 16.03S 130.23E, 22.v.2001, T. Weir & P. Bouchard (ANIC); 1♀ macr., Station Creek, 1 km NNE Bullita, Gregory NP, small billabong in flowing creek, 16.07S 130.25E, 21.v.2001, T. Weir & P. Bouchard (ANIC). **Queensland:** 1♂ apt., Lake Wicheura, on surface freshwater lake, 10.46S 142.34E, 14.x.1992, T. Weir, P. Zborowski (ANIC); 2♂, 2♀ apt., 1♂, 1♀ macr. (dealated), Bamaga, Cape York, 10.53S 142.44E, 15-18.vi.1969, G.B. Monteith (ANIC, UQIC); 1♂, 2♀ apt., same label data as holotype, 10.56S 142.23E (ANIC); 1♂ apt., 13 km S by E of Jardine River Xing, pond edge in running creek, 11.15S 142.23E, 20.x.1992, T. Weir, P. Zborowski (ANIC); 1♂ apt., Rocky Creek Xing, water sweep, 12.08S 142.33E, 17.viii.1992, P. Zborowski & J. Cardale (ANIC); 2♂ apt., Willum Swamp near Weipa, 12.40S 142.00E, 7.xii.1994, B. Herbert (ANIC); 1♂, 2♀ macr., Langi Lagoon, Mungkan Kandju Nat. Pk, large permanent lagoon, clear water at edge, sticks, logs, waterlillies, 13.27S 142.42E, 29.vi.1998, T. Weir (ANIC); 4♂, 4♀ macr., Langi Lagoon, Mungkan Kandju Nat. Pk, at light, open forest,

13.27S 142.42E, 29.vi.1998, T. Weir (ANIC); 1♂ apt., Archer River along peninsula Dev. road, CL 1749, 13.33S 143.03E, 22.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♀ apt., 1♂ macr. (dealated), 10 km WNW of Rokeby (Mango Lagoon), lagoon with rocks at edge, 13.38S 142.35E, 27.x.1992, T. Weir, P. Zborowski (ANIC); 1♂ apt., Bizant, Lakefield NP (Python Waterhole), lagoon with water lillies and vegetation, 14.44S 144.07E, 28.x.1992, T. Weir, P. Zborowski (ANIC); 1♂ macr., Healy Creek, water sweep, 15.08S 143.48E, 15.i.1994, P. Zborowski & E.D. Edwards (ANIC); 3♀ apt., 1♂ macr., 1 nymph, Russell Creek, water sweep, 15.52S 145.19E, 26.iv.1994, P. Zborowski (ANIC).

### *Mesovelgia vittigera* Horváth, 1895

#### *Material examined*

**Northern Territory:** 1♀ macr., Pularumpi, Melville Island, mv light, 11.24S 130.25E, 30.vi.1986, P. Horner, Operation Raleigh (NTMD); 1♂, 1♀ macr., Murgarella, 11.33S 132.55E, 4.viii.1982, C. Wilson & S. Collins (NTMD); 1♂ macr., Cooper Creek, 19 km E by S of Mt Borradaile, 12.06S 133.04E, 31.v.1973, E.G. Matthews (ANIC); 2♂ macr., Cooper Creek, 19 km E by S of Mt Borradaile, 12.06S 133.04E, 5.vi.1973, T. Weir & A. Allwood (ANIC); 2♀ macr., Birraduk Creek, 18 km E by N of Oenpelli, 12.16S 133.13E, 4.vi.1973, R.L. Kitching (ANIC); 1♀ macr., Birraduk Creek, 18 km E by N of Oenpelli, 12.16S 133.13E, 4.vi.1973, T. Weir & A. Allwood (ANIC); 1♀ macr., East Alligator River, Oenpelli, 12.19S 133.03E, 20.x.1948, J.E. Bray (AMS); 1♀ macr., 6 km SW by S of Oenpelli, 12.22S 133.01E, 6.vi.1973, Upton & Feehan (ANIC); 12 macr., 6 km SW by S of Oenpelli, at light, 12.22S 133.01E, 30.v.1973, E.G. Matthews (ANIC); 1♂ 1♀ macr., 6 km SW by S of Oenpelli, at light, 12.22S 133.01E, 6.vi.1973, R.L. Kitching (ANIC); 3♀ macr., 7 km NW by N of Cahills Crossing (East Alligator River), at light, 12.23S 132.56E, 9.vi.1973, R.L. Kitching (ANIC); 1♀ macr., 5 km NNW of Cahills Crossing (East Alligator River), 12.23S 132.57E, 8.vi.1973, R.L. Kitching (ANIC); 1♂, 5♀ macr., Cannon Hill, via Jim Jim, 12.23S 132.57E, 18.viii.1971, T. Weir & A. Allwood (ANIC); 1♀ macr., Holmes Jungle Nature Park, Darwin, shaded slow flowing stream, closed forest, 12.24S 130.56E, 10.vii.1994, T. Weir & A. Roach (ANIC); 2♀ macr., Cahills Crossing, East Alligator River, at light, 12.26S 132.58E, 29.v.1973, E.G. Matthews (ANIC); 1♂, 1♀ apt., 1 nymph, East Alligator River, brackish water, 12.26S 132.58E, 23.vi.1971, A. Allwood (ANIC); 1♂, 1♀ macr., Darwin, 12.27S 130.50E, 19.vi.1969, J.C. Le Souef (NMV); 1♀ apt., Howard River on Gunn Point Rd, 12.28S 131.05E, 15.xii.1979, M.B. Malipatil (NTMD); 1♀ macr., Swim Creek Crossing, Point Stuart Station, 12.31S 131.51E, 10.x.1971, T. Weir & A. Allwood (ANIC); 1♀ macr., 9 km N by E of Mudginberri HS, 12.31S 132.54E, 10.vi.1973, T. Weir & A. Allwood (ANIC); 1♀ apt., 4 nymphs, Magela floodplain, Island Billabong, 12.34S 132.53E, 19.vii.1979, R. Tait (ANIC); 2♂, 1♀ apt., 1♀ macr., Fogg Dam, 12.34S 131.18E, 1.vi.1981, M.B. Malipatil (NTMD); 2♀ apt., 4♂, 3♀ macr., Fogg Dam, 12.34S 131.18E, 5.iv.1980, M.B. Malipatil (NTMD); 1♀ apt., Magela Creek, 12 km N of Arnhem Hwy, on Oenpelli Rd, 12.35S 132.53E, 26.iii.1980, M.B. Malipatil (NTMD); 1♀ macr., 10 km N of Jabiru, at light, 12.35S 132.54E, 21.ix.1982, R.I. Storey (QDPIM); 1♂, 1♀ macr., Mudginberri Station, via Jim Jim, 12.36S 132.52E, 19.viii.1971, T. Weir & A. Allwood (ANIC); 5♂, 7♀ macr., Magela Creek, 1 km NNW of Mudginberri HS, 12.36S 132.52E, 25.v.1973, T. Weir & N. Forrester (ANIC); 1♀ macr., Corndorl Billabong, nr Jabiru, 12.38S 132.52E, 2.x.1982, M.B. Malipatil (NTMD); 3♂, 7♀ apt., 3♂, 2♀ macr., 8 nymphs, Mamukala, 29 km W by N Jabiru, Kakadu NP, shallow billabong with grassy edges and water lillies, 12.39S 132.34E, 15.vii.1994, T. Weir

& A. Roach (ANIC); 4♂, 6♀ apt., 1♀ macr., 18 nymphs, Jabiru East (Retention Pond No 1), Kakadu NP, man made pond with grassy edges and water lillies, 12.40S 132.54E, 15.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 1♀ macr., South Alligator Inn, 12.40S 132.30E, 19.v.1983, J. T. Doyen (ANIC); 1♀ apt., 1♀ macr., 2 nymphs, Jabiru, Kakadu NP, lake with water lillies, grassy edges, algal growth, 12.41S 132.50E, 11.vii.1994, T. Weir & A. Roach (ANIC); 1♂ apt., 1♀ macr., Georgetown Billabong, near Jabiru, 12.41S 132.56E, 21.ix.1982, M. Malipatil (NTMD); 1♂, 18♀ apt., 33 nymphs, Georgetown Billabong, Magela Creek, Kakadu NP, billabong with water lillies & vegetation, 12.41S 132.56E, 11.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 1♀ apt., 1♀ macr., Arnhem Highway, Flying Fox Creek, CL0134, 12.42S 132.20E, 17.v.1979, I. Lansbury (ANIC); 7♂, 5♀ macr., Flying fox Creek, Kapalga, Kakadu NP, deep billabong with algal growth, 12.42S 132.20E, 15.vii.1994, T. Weir & A. Roach (ANIC); 1♂ macr., nymphs, Arnhem Hwy, Leaning Tree Lagoon, near Darwin, CL0126, 12.43S 131.25E, 17.v.1979, I. Lansbury (ANIC); 15 nymphs, 12 km NNW of Mt. Cahill, 12.46S 132.39E, 15.vi.1973, T. Weir & T. Angeles (ANIC); 1 nymph, Bowerbird Billabong, Magela Ck, Kakadu Nat. Pk, still pools in rocky creek bed, sandy bottom, 12.46S 133.02E, 12.vii.1994, T. Weir & A. Roach (ANIC); 4♂, 2♀ apt., 1♀ macr., Manton River, near Darwin CL0122, 12.49S 131.10E, 15.v.1979, I. Lansbury (ANIC); 1♀ macr., 16 km E by N of Mt. Cahill, at light, 12.50S 132.51E, 13.vi.1973, R.L. Kitching (ANIC); 1♂ macr., 19 km E by N of Mt. Cahill, 12.50S 132.52E, 13.vi.1973, T. Weir & T. Angeles (ANIC); 1♀ macr., Magela Creek, 16 km E by N of Mt Cahill, 12.50S 132.51E, 13.vi.1973, R.L. Kitching (ANIC); 1♀ macr., 2 nymphs, Koongarra near Jabiru, CL0115, small pools, 12.52S 132.51E, 9.v.1979, I. Lansbury (ANIC); 2♂, 2♀ apt., 1♂, 1♀ macr., 2 nymphs, Kakadu NP, Nourlangie Rock, CL0117, billabong, 12.52S 132.48E, 10.v.1979, I. Lansbury (ANIC); 2♀ macr., Nourlangie Creek, 6 km NE of Mt. Cahill, 12.49S 132.44E, 2.v.1973, T. Weir & T. Angeles (ANIC); 2♂, 2♀ macr., 2 nymphs, Nourlangie Creek, 8 km E of Mt. Cahill, 12.52S 132.47E, 14.vi.1973, T. Weir & T. Angeles (ANIC); 33♂, 22♀ macr., 4 nymphs, 4 miles [= 6 km] SW of Finnis River Station HS, 12.53S 130.32E, 28.vii.1971, T. Weir & A. Allwood (ANIC); 1♀ macr., Arnhem Highway, nr Mary River, CL0130, grassy pools, 12.54S 131.38E 17.v.1979, I. Lansbury (ANIC); 2♂, 2♀ macr., Arnhem Highway, lagoon off Mary River, CL0129, eucalyptus leaves, detritus, 12.54S 131.38E, 17.v.1979, I. Lansbury (ANIC); 19♀ macr., Yellow Waters, Nourlangie Creek, Kakadu NP, deep billabong with fringing grass and Ludwigia and water lillies, 12.54S 132.31E, 14.vii.1994, T. Weir & A. Roach (ANIC); 2♀ apt., 1♀ macr., Lake Bennett area, 25 km SE Manton Dam, freshwater pool, 13.00S 131.17E, 29.xii.1979, M.B. Malipatil (NTMD); 1♀ apt., Malapanbanjo Creek, 8 km S of Arnhem Hwy, on Pine Creek Rd, Kakadu Nat. Pk, 13.01S 132.28E, 26.iii.1980, M.B. Malipatil (NTMD); 1♀ macr., Coomalie Creek, 27 km N of Adelaide River, at light, 13.02S 131.11E, 28.ix.1977, G.F. Gross & J.A. Forrest (SAMA); 3♀ macr., South Alligator River, 46 km WSW of Mt Cahill, 13.03S 132.19E, 19.v.1973, M.S. Upton (ANIC); 4♂, 9♀ macr., 1 km SE of Batchelor, mv light, 13.03S 131.03E, 12.iv.1966, N. McFarland (SAMA); 5♂, 7♀ macr., 5 nymphs, Giyamongkurr (Black Jungle Spring), Kakadu Nat. Pk, narrow deep billabong with fringing Pandanus & grass & water lillies, 13.03S 132.10E, 14.vii.1994, T. Weir & A. Roach (ANIC); 2♀ macr., Tortilla Flats (Sixty Mile Rice Project), para grass, 13.05S 131.06E, 6.ix.1983, J. Waldeck (ANIC); 22 macr., Reynolds River xing, Litchfield NP, pools in flowing river with fringing Pandanus and grass, 13.18S 130.45E, 18.vii.1994, T. Weir & A. Roach (ANIC); 12 macr., U.D.P. Falls, freshwater pool, 13.26S 132.25E, 18.vii.1980, M.B. Malipatil (NTMD); 1♀ macr., Adelaide River Crossing, Daly River Road, 13.29S 131.04E, 10.viii.1980, M.B. Malipatil (NTMD); 3♂ apt., 2♂ macr., Red Lily Lagoon, nr Daly River, 13.45S 130.42E, 9.viii.1980, M.B. Malipatil (NTMD); 11♂, 31♀ macr., 10 mi [= 15 km] E of Daly River, at light, 13.45S 130.46E, 28.vi.1972, B.K. Head (SAMA); 5♂, 5♀ apt., 2♂, 5♀ macr., Butterfly

Gorge Nature Pk, Douglas River, still pools with floating leaves, algal growth, sandy edges, 13.45S 131.34E, 19.vii.1994, T. Weir & A. Roach (ANIC); 1♂ macr., Daly River, 13.46S 130.43E, 1.vii.1969, J.C. Le Souef (NMV); 1♂, 4♀ macr., Daly River, mv light, 13.46S 130.43E, 9.viii.1980, M.B. Malipatil (NTMD); 1♂ macr., Douglas Hot Springs Nature Park, Douglas R., pools in flowing river, algal growth & logs, 13.46S 131.26E, 20.vii.1994, T. Weir & A. Roach (ANIC); 1♂ apt., Daly River Crossing, at edge of flowing river with fringing Pandanus, 13.46S 130.43E, 19.vii.1994, T. Weir & A. Roach (ANIC); 1♀ apt., Crocodile Creek near Dorisvale, freshwater pool, 14.29S 131.22E, 17.xi.1984, M. Malipatil (NTMD); 2♀ apt., 1♀ macr., Bitter Springs, Roper River, Eley NP, flowing river, deep billabongs with fringing Pandanus & waterlilies & grass, 14.55S 133.05E, 25.vii.1994, T. Weir & A. Roach (ANIC); 1 nymph, Roper River at 4 mile, Eley Nat Pk, edge of flowing river with grass, reeds & algal growth, 14.56S 133.10E, 25.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 1♀ macr., Roper River, 5 km E of Mataranka, at light, 14.56S 133.07E, 27.x.1977, G.F. Gross & J.A. Forrest (SAMA); 2♂, 4♀ apt., 1♂, 3♀ macr., 5 nymphs, Roper River xing, Mataranka Homestead Rd, 5.5 km E of Mataranka, flowing river, deep billabongs with grassy edges and water lillies, 14.56S 133.07E, 25.vii.1994, T. Weir & A. Roach (ANIC); 1♂ apt., Roper River at Jalmurark (12 mile yards) Eley NP, edge of flowing river, 14.57S 133.13E, 24.vii.1994, T. Weir & A. Roach (ANIC); 2♀ apt., Roper River at Mulurark, Eley NP, amongst limestone rocks in flowing river with algal growth, 14.57S 133.12E, 25.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 4♀ macr., 2 nymphs, Salt Creek, Roper Hwy, 21 km SSE Mataranka, flowing creek with muddy edges & rocks, calcium salts encrustation, 15.01S 133.14E, 25.vii.1994, T. Weir & A. Roach (ANIC); 8♂, 4♀ apt., 4 nymphs, Stop No1, Jarnarm Walks, Keep River NP, stagnant pools in creek bed, long fringing grass, 15.45S 129.05E, 23.vii.1994, T. Weir & A. Roach (ANIC); 1♂ macr., Policeman Waterhole, 2 km NW by N Jarnarm, Keep River NP, edge of large billabong, murky, silty, 15.45S 129.05E, 30.v.2001, T. Weir & P. Bouchard (ANIC); 1♂, 2♀ macr., 4 nymphs, 4 km S by E Jarnarm, Keep River NP, deep billabong with waterlilies and fringing grass, 15.48S 129.07E, 27.v.2001, T. Weir & P. Bouchard (ANIC); 1♂, 22 apt., Keep River Gorge, Keep River Nat Pk, deep billabong with rocks and floating leaves, etc, 15.50S 129.07E, 22.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 4♀ macr., 20.5 km N by E Bullita, Gregory NP, shallow pools in flowing creek, muddy bottom, vegetation, 15.56S 130.28E, 23.v.2001, T. Weir & P. Bouchard (ANIC); 19♂, 112 apt., 1♂ macr., 23 nymphs, Cockatoo Lagoon, Keep River NP, deep billabong with waterlilies and fringing grass, 15.59S 129.02E, 23.vii.1994, T. Weir & A. Roach (ANIC); 3♂, 3♀ apt., 4♂, 42♀ macr., Limestone Gorge, Operation Raleigh 1986, freshwater pool, 16.02S 130.23E, 23.vi.1986, M. Malipatil (NTMD); 1♂ macr., Limestone Creek at Limestone Gorge, Gregory NP, flowing creek, pools, rocky limestone bottom, leaves, debris, 16.03S 130.23E, 22.v.2001, T. Weir & P. Bouchard (ANIC); 7♂, 4♀ apt., 2♂, 5♀ macr., 4 nymphs, Bullita Outstation, East Baines River, Gregory NP, deep billabong, rockshelf at end and algal growth, 16.07S 130.25E, 21.vii.1994, T. Weir & A. Roach (ANIC); 1♀ macr., Ayers Rock [?], 25.21S 131.01E, 4.vi.1969, J.C. Le Souef (NMV).

**Queensland:** 19♂, 27♀ macr., Lockerbie, Cape York, 10.48S 142.28E, 6.vi.1969, G.B. Monteith (UQIC); 1♂, 1♀ apt., Bamaga, Cape York Pen., 10.53S 142.44E, 15.vi.1969, G.B. Monteith (ANIC, UQIC); 1♂, 1♀ apt., Cowal Creek, edge of flowing stream, 10.58S 142.20E, 18.x.1992, T. Weir & P. Zborowski (ANIC); 3♂, 2♀ apt., 5 nymphs, Jardine River Crossing, edge of flowing river, 11.09S 142.22E, 19.x.1992, T. Weir & P. Zborowski (ANIC); 13 nymphs, 3 km WSW of Ussher Point, freshwater lake, 11.10S 142.46E, 19.x.1992, T. Weir & P. Zborowski (ANIC); 1 nymph, 2 km S of Ussher Point, pool behind beach, in sand, 11.10S 142.48E, 19.x.1992, T. Weir & P. Zborowski (ANIC); 4♂, 4♀ apt., 3 nymphs, Eliot Creek (Eliot/Twin Falls), pools in rocky running creek, 11.23S 142.25E, 20.x.1992, T. Weir & P. Zborowski (ANIC); 1♂, 1♀ apt., Eliot Ck (Fruit

Bat Falls), on still water pools in creek, 11.26S 142.26E, 14.x.1992, T. Weir & P. Zborowski (ANIC); 1♀ apt., 2 nymphs, Eliot Ck (Fruit Bat Falls), on soak at creekside, amongst Drosera, 11.26S 142.26E, 14.x.1992, T. Weir & P. Zborowski (ANIC); 2♂ apt., 2 nymphs, 1 km NE of Heathlands, Cape York Pen., near airstrip, Nepenthes meadow, 11.45S 142.35E, 12.iii.1992, G. Cassis (AMS); 10♂, 8♀ apt., 1♀ macr., 1 nymph, Heathlands, creek in Nepenthes meadow, 11.45S 142.35E, 20.vi.1992, T. Weir (ANIC); 1♂ apt., Rocky Creek Xing, water sweep, 12.06S 142.34E, 17.viii.1992, P. Zborowski & J. Cardale (ANIC); 2♀ apt., 21 km W by N of Bertiehaugh, water sweep, billabong, 12.10S 142.19E, 14.viii.1993, P. Zborowski & J. Balderson (ANIC); 1♂ macr., Wenlock River, Stone Crossing, 12.23S 142.10E, 14.viii.1993, P. Zborowski & J. Balderson (ANIC); 1♀ macr., East Claudie River, mv light, 12.43S 143.18E, 1.vii.1982, M.A. Schneider & G. Daniels (UQIC); 2♀ macr., Iron Range, Cape York Peninsula, 12.44S 143.17E, 28.iv.1968, G. Monteith (UQIC); 7♂, 9♀ macr., Iron Range, Cape York Peninsula, 12.44S 143.17E, 1.vi.1971, G.B. Monteith (UQIC); 3♂, 5♀ macr., Iron Range, Cape York Peninsula, 12.44S 143.17E, 26.v.1971, B.K. Cantrell (UQIC); 1♀ apt., 4.5 km S by E of Lockhart River, amongst mangroves in tidal river, 12.49S 143.21E, 25.x.1992, T. Weir & P. Zborowski (ANIC); 1♀ apt., Wenlock River Crossing, still stagnant pools in dry river bed, 13.06S 142.56E, 26.x.1992, T. Weir & P. Zborowski (ANIC); 12♂, 5♀ apt., 15♀ macr., nymphs, Langi Lagoon, Mungkan Kandju Nat. Pk, large permanent lagoon, clear water at edge, sticks. logs. waterlillies, 13.27S 142.42E, 29.vi.1998, T. Weir (ANIC); 1♀ macr., Langi Lagoon, Mungkan Kandju Nat. Pk, at light, open forest, 13.27S 142.42E, 29.vi.1998, T. Weir (ANIC); 18♂, 7♀ apt., nymphs, Bobs Lagoon, Mungkan Kandju Nat. Pk, permanent lagoon, clear water, lots of floating vegetation, 13.27S 142.44E, 3.vii.1998, T. Weir (ANIC); 6♂, 2♀ apt., 5 nymphs, 27 km NW by W of Rokeby, lagoon with rocks, vegetation and water lillies, 13.31S 142.27E, 27.x.1992, T. Weir & P. Zborowski (ANIC); 3♂, 5♀ apt., 1♂ macr., 5 nymphs, 10 km WNW of Rokeby (Mango Lagoon), lagoon with rocks at edge, 13.38S 142.35E, 27.x.1992, T. Weir & P. Zborowski (ANIC); 1♂ macr., Culliban Creek, water sweep, 13.39S 142.49E, 27.v.1993, P. Zborowski & A. Roach (ANIC); 1♀ macr., Rocky River, at light, savanna woodland, 13.49S 143.28E, 16.vi.1960, C.N. Smithers (AMS); 8♂, 2♀ apt., 5 nymphs, Muck Lagoon, Cape Melville, water, pH 2.8, 14.18S 144.26E, 7.vi.1994, B. Herbert & P. Graham (ANIC); 1♂, 1♀ apt., Holroyd River, lagoon, 14.22S 142.27E, 14.ix.1993, P. Zborowski & S. Shattuck (ANIC); 11♂, 19♀ apt., 1♀ macr., 6 nymphs, Saltwater Creek, Lakefield Nat. Pk, stagnant pools with debris, 14.37S 143.54E, 28.x.1992, T. Weir & P. Zborowski (ANIC); 3♂, 5♀ apt., 4♂ macr., 2 nymphs, Normanby Riv, Lakefield NP (Orange Plain waterhole), waterhole with debris and vegetation, 14.43S 144.10E, 29.x.1992, T. Weir & P. Zborowski (ANIC); 13♂, 7♀ apt., 30 nymphs, Bizant, Lakefield Nat. Pk (Python Waterhole), lagoon with water lillies and vegetation, 14.44S 144.07E, 28.x.1992, T. Weir & P. Zborowski (ANIC); 2♀ apt., 3♂ macr., 2 nymphs, Dark Hole, Edward R., 14.46S 142.20E, 31.v.1994, B. Herbert & P. Graham (ANIC); 1♀ apt., Coleman River, water sweep, 14.48S 143.22E, 26.vi.1993, P. Zborowski & I. Naumann (ANIC); 1♂, 1♀ macr., Normanby River, Lakefield Nat. Pk (Hanushs waterhole), waterhole with debris, 14.50S 144.12E, 29.x.1992, T. Weir & P. Zborowski (ANIC); 1♂, 2♀ macr., Long Lagoon, Coleman River, at light, 14.54S 142.50E, 16.viii.1993, P. Zborowski & J. Balderson (ANIC); 2♀ apt., Catfish Creek, Lakefield Nat. Pk (Catfish Waterhole), waterhole with water lillies, 15.04S 144.17E, 29.x.1992, T. Weir & P. Zborowski (ANIC); 3♀ apt., 2♂ macr., Hann River, 50 miles [= 75 km] N of Laura, 15.11S 143.52E, 1.x.1969, B. Cantrell (ANIC); 1♂ macr., Hann River, 73 km NW by W of Laura, 15.12S 143.52E, 27.vi.1986, T. Weir & A. Calder (ANIC); 1♂ apt., 4 km W of Lakeland, water sweep, 15.51S 144.50E, 30.vii.1992, P. Zborowski & E.S. Nielsen (ANIC); 2♂ apt., Laura River, water sweep, 15.56S 144.50E, 30.vii.1992, P. Zborowski & E.S. Nielsen (ANIC); 1♀ macr., Mornington Island

Mission, at light, 16.40S 139.10E, 11.v.1963, P. Aitken & N. Tindale (SAMA); 1♀ apt., Little Mitchell River, CL0143, 16.44S 145.21E, 22.v.1979, I. Lansbury (ANIC); 1♀ apt., 1♂ macr., 5 km from Mareeba on Molloy Road, CL0140, roadside pool, 16.57S 145.25E, 22.v.1979, I. Lansbury (ANIC); 2♂, 3♀ apt., 2 nymphs, Tinaroo Falls Dam inlet, just below Lookout Point, CL0146, 17.11S 145.33E, 25.v.1979, I. Lansbury (ANIC); 1♀ macr., Flying Fish Point, at light, 17.30S 146.05E, 21.i.1965, E.C. Dahms (QMB); 1♀ macr., Normanton, at light, 17.40S 141.04E, 5.v.1963, P. Aitken & N. Tindale (SAMA); 1♀ macr., Lacey's Creek, Mission Beach, 17.51S 146.04E, 21.iv.1970, G.B. Monteith (UQIC); 1♀ macr., Leichhardt Falls, 35 mi [= 53 km] SE of Burketown, 18.13S 139.53E, 24.v.1972, G.B. & S.R. Monteith (UQIC); 1♂ macr., Amphitheatre Springs, 28 km N by E Musselbrook Mining Camp, at light, 18.21S 138.11E, 12.v.1995, I.D. Naumann (ANIC); 3♀ macr., Amphitheatre Springs, 28 km N by E Musselbrook Mining Camp, small spring fed pools, dark water, roots and debris in water, algal growth, scum on surface, 18.21S 138.11E, 12.v.1995, T. Weir (ANIC); 3♀ macr., Amphitheatre Springs, 28 km N by E Musselbrook Mining Camp, at light, 18.21S 138.11E, 12.v.1995, T. Weir (ANIC); 7♂, 7♀ macr., Amphitheatre Camp, 27 km N by E Musselbrook Mining Camp, small pools in rocky creek bed, sandy bottom, debris in water, clear or murky water, 18.21S 138.10E, 13.v.1995, T. Weir (ANIC); 1♂ macr., Musselbrook Creek, 19 km NE by E Musselbrook Mining Camp, large and small pools in gorge, rocky with sandy, pebbly bottom, algal growth, debris, 18.30S 138.17E, 15.v.1995, T. Weir (ANIC); 1♂ macr., Holts Creek, 8 km N Musselbrook Mining Camp, large pools in rocky creek bed, sandy bottom, debris, logs in water, 18.33S 138.11E, 10.v.1995, T. Weir (ANIC); 2♂ macr., Holts Creek, 8 km N Musselbrook Mining Camp, at light, 18.33S 138.11E, 10.v.1995, T. Weir (ANIC); 1♂ macr., Musselbrook Creek, 11 km ENE Musselbrook Mining Camp, clear shallow pool in rocky creek bed, sandy bottom, log and twigs in water, 18.34S 138.13E, 15.v.1995, T. Weir (ANIC); 18♂, 19♀ macr., 4 nymphs, Murrays Spring, 8 km W by N Musselbrook Mining Camp, large pool in rocky creek bed, sandy bottom, water lillies, Pandanus, algal growth, 18.35S 138.03E, 9.v.1995, T. Weir (ANIC); 1♀ macr., Murrays Creek, Musselbrook Mining Camp, large pool in rocky creek bed, polluted seepages, algal growth, 18.36S 138.08E, 11.v.1995, T. Weir (ANIC); 5♀ macr., 8 km SE by E of Musselbrook Mining Camp, at light, 18.38S 138.11E, 11.v.1995, T. Weir (ANIC); 3♂ macr., 10 km SE of Musselbrook Mining Camp, at light, 18.39S 138.12E, 13.v.1995, T. Weir (ANIC); 11♂, 21♀ apt., 24 nymphs, Ridgepole Waterhole 24 km ESE Musselbrook, large permanent waterhole, water lillies, nardoo, algal growth, 18.40S 138.20E, 11.v.1995, T. Weir (ANIC); 17♂, 21♀ apt., 13 nymphs, Louie Creek Xing, Lawn Hill NP, flowing creek, silty bottom, floating and other vegetation including water lillies, 18.46S 138.31E, 17.v.1995, T. Weir (ANIC); 1♀ apt., 1 nymph, Louie Creek, near stockyards, Lawn Hill NP, flowing creek, clear water, sandy bottom, Pandanus, debris, some vegetation, 18.47S 138.31E, 17.v.1995, T. Weir (ANIC); 2♀ apt., 2 km WNW of Riversleigh HS, Gregory River, 19.01S 138.43E, 29.iv.1986, J.A. Forrest (SAMA); 2♂ apt., Townsville, Institute of Marine Science, CL0150, beach pond, 19.11S 146.46E, 31.v.1979, I. Lansbury (ANIC); 2♀ apt., Townsville, Institute of Marine Science, CL0152, rocky creek, 19.11S 146.46E, 30.v.1979, I. Lansbury (ANIC); 1♂ apt., Ayr, stagnant water, 19.34S 147.24E, 1.vi.1953, T.E. Woodward (UQIC, ZMUC); 1♂, 22 apt., Cedar Creek Falls via Proserpine, 20.24S 148.43E, 5.xi.1969, T. Weir (ANIC); 3♀ apt., 1♂ macr., White Mountains NP, "Foot Paddock Dam", still pools, murky, sedges, vegetation, rocky base, logs, algae, full sun, 20.27S 144.49E, 5.iv.2000, T. Weir (ANIC); 1♂ apt., 1 nymph, Pioneer River at Marian Mill, DNRQ SITE 125003A, 21.09S 148.56E, 12.v.1998, DNRQ (DNRQ); 1♂ macr., Pioneer River at Balnagowan Crossing, 21.09S 149.01E, 3.xi.1969, T. Weir (ANIC); 11♂, 4♀ apt., 1♀ macr., Hedlow Creek, 17 km W Rockhampton, 23.13S 150.37E, 27.iv.1969, T. Weir (ANIC, UQIC); 4♂, 4♀ apt., 1♂ macr., Frenchmans Creek, via Rockhampton,

23.21S 150.34E, 15.iv.1969, T. Weir (ANIC); 1♀ apt., Dawson River at Capricorn Highway, 23.48S 149.46E, 5.iv.1969, T. Weir (UQIC); 6♂, 2♀ apt., Fraser Island, 25.30S 153.03E, 1.v.1967, M.C. McKee (UQIC); 1♂, 1♀ apt., Fraser Island, 2nd creek SE, 25.30S 153.03E, 20.v.1971, D.L. Hancock (UQIC); 1♀ apt., Ashgrove, Brisbane, Walton Bridge, 27.27S 152.59E, 3.v.1960, I.C. Yeo (UQIC); 12 apt., Brown Lake, North Stradbroke Island, 27.29S 153.26E, 27.ii.1969, T. Weir (ANIC, UQIC); 34♂, 21♀ apt., 1♂, 2♀ macr., Yerrol Creek, North Stradbroke Island, 27.29S 153.25E, 28.ii.1969, T. Weir (UQIC); 18♀ apt., Myora, North Stradbroke Island, saltwater amongst mangroves, 27.29S 153.25E, 28.ii.1969, T. Weir (UQIC). **Western Australia:** 1♂, 1♀ macr., Kalumburu Mission, at light, 14.17S 126.38E, 24.v.1993, E.D. Edwards (ANIC); 1♂, 4♀ macr., Carson Escarpment, Drysdale River survey 1975, site B1, 14.49S 126.49E, 9.viii.1975, I.F.B. Common & M.S. Upton (ANIC); 1♂ macr., 4 km S by W of Mining Camp, Mitchell Plateau, stop 17, at light, 14.52S 125.50E, 13.v.1983, D.C.F. Rentz & J Balderson (ANIC); 1♂ apt., 1♂ macr., Kunmunya Mission, creek through open forest, 15.27S 124.42E, 16.vi.1988, I.D. Naumann (ANIC); 13♂ 19f apt., 10 nymphs, Spillway Creek, 11 km NNE Ord River Dam, still water at edge of strong flowing creek, aquatic vegetation, algal growth, 16.02S 128.47E, 24.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 1♀ apt., 1 nymph, Royston Creek Yards, Royston Creek, CALM SITE PEN08, 16.05S 127.16E, 16.v.1998, CALM (ANIC); 1♂, 2♀ macr., Charnley River, 2 km SW Rolly Hill CALM Site 25/2, at light, closed forest margin, 16.22S 125.12E, 16.vi.1988, I.D. Naumann (ANIC); 1♂ apt., Upper Durack, Durack River, CALM SITE PEN05, 16.53S 127.12E, 11.v.1998, CALM (ANIC); 1♂ apt., Ord Gap, Pandanus Creek, CALM SITE FIT05, 17.35S 125.52E, 7.x.1998, CALM (ANIC); 1♂ apt., 1 nymph, Palm Springs, Palm Springs Creek, CALM SITE CLM18, undisturbed, seasonal, 18.30S 126.26E, 1994, CALM (CALM); 1♀ apt., Poonthune Pool, Turner River East, CALM SITE CLM24, 20.47S 118.43E, 25.x.1994, CALM (CALM); 2♀ apt., Millstream, Top end of Crossing Pool, 21.35S 117.04E, 20.vii.1958, R.P. McMillan (WAM); 1f apt., Millstream, 21.35S 117.04E, 18.vii.1958, R.P. McMillan (WAM); 1♂, 1♀ macr., 1 km NNE of Millstream HS, 21.35S 117.04E, 3.iv.1971, M.S. Upton (ANIC); 1♀ apt., Cangan Pool, Cockeraga River, CALM SITE CLM21, moderately disturbed, episodic, macrophytes, 21.42S 118.38E, 1995, CALM (CALM); 1♂, 1♀ apt., Wallarook Pool, Duck Creek, CALM SITE CLM35, moderately disturbed, episodic, 22.29S 116.28E, 31.x.1994, CALM (CALM); 2♂, 4♀ apt., 3 nymphs, Minnie Springs, Henry River, CALM SITE ASH02, 23.03S 115.42E, 14.v.1998, CALM (CALM); 1♂, 3♀ apt., 3 nymphs, Edithana Pool, Lyons River, CALM SITE GAS04, 24.07S 116.30E, 25.iv.1998, CALM (ANIC).

### *Mesovelia horvathi* Lundblad, 1933

#### *Material examined*

**Northern Territory:** 2♂, 1♀ apt., 1♂, 5♀ macr., Cooper Creek, 19 km E by S of Mt Borradaile, 12.06S 133.04E, 5.vi.1973, T. Weir & A. Allwood (ANIC); 5♂, 2♀ macr., 3 nymphs, Birraduk Creek, 18 km E by N of Oenpelli, 12.16S 133.13E, 4.vi.1973, T. Weir & A. Allwood (ANIC); 1♀ apt., Holmes Jungle Nature Park, Darwin, shaded slow flowing stream, closed forest, 12.24S 130.56E, 10.vii.1994, T. Weir & A. Roach (ANIC); 1♀ macr., Holmes Jungle, near Darwin, 12.24S 130.56E, 15.vii.1983, M.B. Malipatil (NTMD); 1♂, 3♀ apt., Howard Springs, 12.27S 131.03E, 18.iii.1971, T. Weir (ANIC); 1♀ apt., Howard Springs near Darwin, CL0107, 12.27S 131.03E, 3.v.1979, I. Lansbury (ANIC); 9♂, 8♀ apt., 4 nymphs, Swim Creek Crossing, Point Stuart Station, 12.31S 131.51E, 10.x.1971, T. Weir & A. Allwood (ANIC); 2♀ apt., Mudginberri Station, via Jim Jim,

12.36S 132.52E, 19.viii.1971, T. Weir & A. Allwood (ANIC); 1♂ apt., Jabiru, Kakadu NP, lake with water lillies, grassy edges, algal growth, 12.41S 132.50E, 11.vii.1994, T. Weir & A. Roach (ANIC); 4♂, 3♀ apt., 1♂, 3♀ macr., 3 nymphs, Magela Ck, Kakadu Nat. Pk, still pools in sandy creek bed, 12.41S 132.56E, 11.vii.1994, T. Weir & A. Roach (ANIC); 1♀ apt., Arnhem Highway, Flying Fox Creek, CL0134, 12.42S 132.20E, 17.v.1979, I. Lansbury (ANIC); 1♂, 1♀ apt., Berry Springs, 12.42S 130.58E, 23.x.1970, T. Weir (ANIC); 3♂, 2♀ apt., Magela Ck Arnhem Land, pools in flowing creek, sandy bottom, 12.45S 133.02E, 12.vii.1994, T. Weir & A. Roach (ANIC); 2♂, 3♀ apt., Nourlangie Creek, 6 km NE of Mt. Cahill, 12.49S 132.44E, 2.v.1973, T. Weir & T. Angeles (ANIC); 3♂ apt., 19 km E by N of Mt. Cahill, 12.50S 132.52E, 14.vi.1973, T. Weir (ANIC); 3♂ apt., 19 km E by N of Mt. Cahill, 12.50S 132.52E, 18.xi.1972, T. Weir & A. Allwood (ANIC); 1♂, 1♀ apt., 19 km E by N of Mt. Cahill, 12.50S 132.52E, 13.vi.1973, T. Weir & T. Angeles (ANIC); 1♂ apt., Arnhem Highway, Wildman River, West branch, CL0131, CL0132, isolated pool, 12.50S 131.57E, 17.v.1979, I. Lansbury (ANIC); 1♂, 1♀ apt., Darwin River Reservoir, 12.50S 130.58E, 7.vii.1980, M.B. Malipatil (NTMD); 1 nymph, Gubarra (Baroalba Springs), Kakadu Nat. Pk, shaded pools in flowing creek, rocky with sandy bottom, closed forest, 12.50S 132.53E, 13.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 1♀ apt., 1♂, 1♀ macr., Muirella Park, Nourlangie Ck, Kakadu NP, deep billabong, fringing Pandanus, 12.51S 132.45E, 13.vii.1994, T. Weir & A. Roach (ANIC); 1♀ apt., 1♀ macr., Nourlangie Creek, 8 km E of Mt. Cahill, 12.52S 132.47E, 14.vi.1973, T. Weir & T. Angeles (ANIC); 1♂, 1♀ apt., 1♂ 3♀ macr., 4 miles [= 6 km] SW of Finnis River Station HS, 12.53S 130.32E, 28.vii.1971, T. Weir & A. Allwood (ANIC); 3♂, 3♀ apt., 1♂ macr., 3 nymphs, Lightning Dreaming Gorge, 25 km E by S of Mt. Cahill, 12.55S 132.56E, 12.vi.1973, T. Weir (ANIC); 1♀ apt., Arnhem Highway, creek 13 km W of Mary River, CL0127, 13.00S 131.33E, 17.v.1979, I. Lansbury (ANIC); 4♂, 6♀ apt., 1♀ macr., 1 nymph, Finnis River xing, 9 km WNW Batchelor, shallow water with lots of floating leaves, 13.01S 130.57E, 17.vii.1994, T. Weir & A. Roach (ANIC); 1♀ apt., Coomalie Creek, nr Darwin, CL0121, 13.03S 131.11E, 15.v.1979, I. Lansbury (ANIC); 2♂, 3♀ apt., 1♂, 1♀ macr., Giyamungkurr (Black Jungle Spring), Kakadu Nat. Pk, narrow deep billabong with fringing Pandanus & grass & water lillies, 13.03S 132.10E, 14.vii.1994, T. Weir & A. Roach (ANIC); 1♀ macr., South Alligator R. Xing, Kakadu NP, flowing river with rocks at edge, 13.03S 132.19E, 14.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 1♀ apt., 1♀ macr., Bamboo Ck Tin Mine, Litchfield Nat. Pk, flowing creek with shaded pools, 13.04S 130.43E, 18.vii.1994, T. Weir & A. Roach (ANIC); 1♀ apt., 3 nymphs, Florence Falls, Litchfield Nat. Pk, flowing creek in closed forest, rocky sides, shaded pools, 13.06S 130.47E, 17.vii.1994, T. Weir & A. Roach (ANIC); 2♀ apt., Aida Creek Jumpup, Litchfield NP, shallow flowing creek with pools, 13.08S 130.49E, 17.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 1♀ apt., 1♀ macr., Stapleton Creek, 105 km S of Darwin, CL0120, 13.11S 131.03E, 13.v.1979, I. Lansbury (ANIC); 1 nymph, Tjaynera Falls (Sandy Ck Falls), Litchfield Nat. Pk, flowing creek with shaded pools, 13.15S 130.47E, 17.vii.1994, T. Weir & A. Roach (ANIC); 1♀ apt., Reynolds River xing, Litchfield NP, pools in flowing river with fringing Pandanus and grass, 13.18S 130.45E, 18.vii.1994, T. Weir & A. Roach (ANIC); 1♂ macr., Robin Falls, CL0119, 13.21S 131.08E, 15.v.1979, I. Lansbury (ANIC); 3♂, 3♀ apt., 1♂, 1♀ macr., U.D.P. Falls, 67 miles [= 100 km] E of Pine Creek, 13.26S 132.25E, 7.vii.1971, T. Weir (ANIC); 1♀ macr., 1 nymph, hot springs off Daly River Road, flowing stream with shaded pools, closed forest, 13.29S 131.04E, 19.vii.1994, T. Weir & A. Roach (ANIC); 1♀ apt., 1 nymph, Mary River, 37 miles [= 55 km] E of Pine Creek, 13.36S 132.08E, 9.vii.1971, T. Weir & A. Allwood (ANIC); 1♀ apt., Red Lily Lagoon, nr Daly River, 13.45S 130.42E, 9.viii.1980, M.B. Malipatil (NTMD); 1♀ apt., Daly River Crossing, at edge of flowing river with fringing Pandanus, 13.46S 130.43E, 19.vii.1994, T. Weir & A. Roach (ANIC); 6♂, 3♀ apt., 1♂ macr., 1



nymph, Douglas Hot Springs Nature Park, Douglas R., pools in flowing river, algal growth & logs, 13.46S 131.26E, 20.vii.1994, T. Weir & A. Roach (ANIC); 1♀ apt., Umbrawarra Gorge Nature Park, flowing creek, large rock pools, sandy bottom, 13.58S 131.42E, 20.vii.1994, T. Weir & A. Roach (ANIC); 1♂ apt., Edith Falls, Nitmiluk (Katherine Gorge) NP, flowing river with fringing Pandanus, floating leaves and bark, 14.11S 132.11E, 20.vii.1994, T. Weir & A. Roach (ANIC); 1♂ apt., Katherine Gorge Nat. Pk Butterfly Gorge, freshwater stream, 14.19S 132.27E, 5.xii.1980, M.B. Malipatil (NTMD); 6♂, 8♀ apt. 5 nymphs, Katherine, 14.28S 132.16E, 23.i.1971, T. Weir & A. Allwood (ANIC); 1♀ apt., Bitter Springs, Roper River, Elsey NP, flowing river, deep billabongs with fringing Pandanus & waterlilies & grass, 14.55S 133.05E, 25.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 1♀ apt., Roper River at 4 mile, Elsey Nat Pk, edge of flowing river with grass, reeds & algal growth, 14.56S 133.10E, 25.vii.1994, T. Weir & A. Roach (ANIC); 3♀ apt., Roper River xing, Mataranka Homestead Rd, 5.5 km E of Mataranka, flowing river, deep billabongs with grassy edges and water lillies, 14.56S 133.07E, 25.vii.1994, T. Weir & A. Roach (ANIC); 1♀ apt., Roper River at Mulurark, Elsey NP, amongst limestone rocks in flowing river with algal growth, 14.57S 133.12E, 25.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 2♀ apt., Keep River Xing, 1 km ENE Jarnarm, Keep River NP, large pools in flowing river, 15.45S 129.06E, 25.v.2001, T. Weir & P. Bouchard (ANIC); 2♀ apt., 1♀ macr., Policeman Waterhole, 2 km NW by N Jarnarm, Keep River NP, edge of large billabong, murky, silty, 15.45S 129.05E, 30.v.2001, T. Weir & P. Bouchard (ANIC); 7♂, 8♀ apt., 1♀ macr., 2 nymphs, Stop No1, Jarnarm Walks, Keep River NP, stagnant pools in creek bed, long fringing grass, 15.45S 129.05E, 23.vii.1994, T. Weir & A. Roach (ANIC); 1♀ apt., 2 nymphs, Jarnarm, Keep River NP, flowing creek in burnt scrub, vegetation, logs, 15.46S 129.06E, 25.v.2001, T. Weir & P. Bouchard (ANIC); 1♀ apt., 3 nymphs, Nigli Gap, 2 km W by N Jarnarm, Keep River NP, still pools in rocky gorge, grass, algae, trickling, 15.46S 129.05E, 28.v.2001, T. Weir & P. Bouchard (ANIC); 1♀ apt., Keep River Gorge, Keep River Nat Pk, deep billabong with rocks and floating leaves, etc, 15.50S 129.07E, 22.vii.1994, T. Weir & A. Roach (ANIC); 4♂, 3♀ apt., 1♂ 1♀ macr., 4 nymphs, 20.5 km N by E Bullita, Gregory NP, shallow pools in flowing creek, muddy bottom. vegetation, 15.56S 130.28E, 23.v.2001, T. Weir & P. Bouchard (ANIC); 1♂ apt., Cockatoo Lagoon, Keep River NP, deep billabong with waterlilies and fringing grass, 15.59S 129.02E, 23.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 1♀ apt., Limestone Gorge, Operation Raleigh 1986, freshwater pool, 16.02S 130.23E, 23.vi.1986, M. Malipatil (NTMD); 1♂, 5♀ apt., 1 nymph, Limestone Ck at Limestone Gorge, Gregory NP, flowing creek, pools, rocky limestone bottom, leaves, debris, 16.03S 130.23E, 22.v.2001, T. Weir & P. Bouchard (ANIC); 8♂, 5♀ apt., 1♀ macr., 1 nymph, Limestone Gorge, junction of East Baines R. and Limestone Ck, Gregory NP, pools in flowing creek, muddy and rocky edges, 16.03S 130.23E, 21.vii.1994, T. Weir & A. Roach (ANIC); 1♀ apt., 1♂ macr., Bullita Outstation, 16.07S 130.25E, 22.vi.1986, M. Malipatil, Operation Raleigh (NTMD); 3♀ apt., 1♂, 1♀ macr., Station Ck, 1 km NNE Bullita, Gregory NP, small billabong in flowing creek, 16.07S 130.25E, 21.v.2001, T. Weir & P. Bouchard (ANIC). **Queensland:** 1♂, 1♀ apt., Punsand Bay, man made dam, 10.43S 142.27E, 10.x.1992, T. Weir & P. Zborowski (ANIC); 1♂, 1♀ apt., 10 km SSW of Cape York, stagnant pools in creek, 10.46S 142.30E, 15.xi.1992, T. Weir & P. Zborowski (ANIC); 1♂, 2♀ apt., 2 nymphs, Laradeenya Creek, still pools in dry creek bed, 10.46S 142.27E, 17.x.1992, T. Weir & P. Zborowski (ANIC); 10♂, 8♀ apt., Lockerbie, Cape York, 10.48S 142.28E, 10.vi.1969, G.B. Monteith (ANIC, UQIC); 1♀ apt., Bamaga, Cape York Pen., 10.53S 142.44E, 15.vi.1969, G.B. Monteith (ANIC, UQIC); 1♀ apt., Mistake Creek, pools in running creek, 11.21S 142.24E, 20.x.1992, T. Weir & P. Zborowski (ANIC); 1♂ apt., Eliot Creek (Eliot/Twin Falls), pools in rocky running creek, 11.23S 142.25E, 20.x.1992, T. Weir & P. Zborowski (ANIC); 1♂ apt., Cockatoo Creek, water sweep,

11.39S 142.27E, 19.viii.1992, P. Zborowski & J. Cardale (ANIC); 1 ♀ apt., 3 nymphs, Cockatoo Creek, pools in rocky running creek, 11.39S 142.27E, 20.x.1992, T. Weir & P. Zborowski (ANIC); 5 ♂, 7 ♀ apt., 3 nymphs, Cockatoo Creek Xing, 17 km NW of Heathlands, 11.39S 142.27E, 15.i.1992, T.A. Weir & I.D. Naumann (ANIC); 2 ♂, 2 ♀ macr., Heathlands, FIT ANIC 1239 closed scrub (= heath), 11.45S 142.35E, 26.i.1992, P. Feehney (ANIC); 1 ♂ apt., Heathlands, water sweep, 11.45S 142.35E, 18.viii.1992, P. Zborowski & J. Cardale (ANIC); 2 ♂ macr., Heathlands, FIT ANIC 1220 open forest ♂1, 11.45S 142.35E, 15.i.1992, T.A. Weir & I.D. Naumann (ANIC); 3 ♂, 3 ♀ apt., 2 nymphs, Heathlands, running creek, 11.45S 142.35E, 20.x.1992, T. Weir & P. Zborowski (ANIC); 7 ♂ apt., 6 nymphs, Bertie Creek, pools in rocky running creek, 11.50S 142.30E, 21.x.1992, T. Weir & P. Zborowski (ANIC); 1 ♀ apt., Bertie Creek Xing, 12 km SW Heathlands, 11.50S 142.30E, 15.i.1992, T.A. Weir & I.D. Naumann (ANIC); 1 ♀ apt., 1 ♂ macr., Dulhunty River Crossing, water sweep, 11.50S 142.30E, 10.xi.1993, P. Zborowski & S. Shattuck (ANIC); 1 ♂ apt., 1 ♀ macr., Palm Creek, water sweep, 12.08S 142.04E, 11.xi.1993, P. Zborowski & S. Shattuck (ANIC); 1 ♀ apt., Bertiehaugh Creek, watersweep, 12.11S 142.21E, 13.viii.1993, P. Zborowski & J. Balderson (ANIC); 1 ♀ apt., Bertiehaugh Creek, watersweep, 12.11S 142.21E, 10.ix.1993, P. Zborowski & S. Shattuck (ANIC); 1 ♂, 2 ♀ apt., Ling Creek, water sweep, 12.19S 142.10E, 14.viii.1993, P. Zborowski & J. Balderson (ANIC); 6 ♂, 5 ♀ apt., 3 nymphs, Glennie Creek, running creek, 12.21S 143.00E, 23.x.1992, T. Weir, P. Zborowski (ANIC); 1 ♂, 2 ♀ apt., Schramm Creek, 12.22S 142.37E, 19.v.1993, P. Zborowski & A. Roach (ANIC); 2 ♂ apt., 4 nymphs, Wenlock River, water sweep, 12.27S 142.38E, 8.xi.1993, P. Zborowski & S. Shattuck (ANIC); 1 ♂ apt., Vycos Crossing (Andoom Creek), water sweep, 12.30S 141.53E, 15.viii.1993, P. Zborowski & J. Balderson (ANIC); 1 ♂, 3 ♀ apt., Wenlock River Crossing, still stagnant pools in dry river bed, 12.39S 142.47E, 26.x.1992, T. Weir & P. Zborowski (ANIC); 1 ♀ apt., Lydia Creek, water sweep, 12.40S 142.40E, 7.ix.1993, P. Zborowski & S. Shattuck (ANIC); 1 ♂ apt., Moonlight Creek, water sweep, 12.42S 142.30E, 22.vi.1993, P. Zborowski & I. Naumann (ANIC); 2 ♂, 6 ♀ apt., 1 ♀ macr., 3 nymphs, 9 km NNW of Lockhart River, stagnant pools in dry creek bed, closed forest, 12.43S 143.18E, 25.x.1992, T. Weir & P. Zborowski (ANIC); 1 ♂, 1 ♀ apt., 2 nymphs, 3 km ENE of Mt. Tozer, 12.44S 143.14E, 28.vi.1986, T. Weir & A. Calder (ANIC); 7 ♂, 9 ♀ apt., 1 ♂ macr., 13 nymphs, West Claudie River, closed forest, still rocky pools in non flowing stream, 12.45S 143.14E, 24.x.1992, T. Weir & P. Zborowski (ANIC); 1 ♂, 2 ♀ apt., 1 nymph, Pascoe River Crossing, stagnant pools in dry river bed, 12.53S 142.56E, 26.ix.1992, T. Weir & P. Zborowski (ANIC); 1 ♀ apt., 2 nymphs, Wenlock River Crossing, at flowing river edge, 13.06S 142.56E, 24.x.1992, T. Weir & P. Zborowski (ANIC); 1 ♀ apt., Archer River along peninsula development road, CL1749, 13.26S 142.56E, 22.viii.1983, J.T. & D.A. Polhemus (JTTC); 9 ♂, 7 ♀ apt., 1 ♂ 1 ♀ macr., nymphs, Langi Lagoon, Mungkan Kandju Nat. Pk, large permanent lagoon, clear water at edge, sticks. logs. waterlillies, 13.27S 142.42E, 29.vi.1998, T. Weir (ANIC); 1 ♂ apt., 17 km NW by N of Rokeby (Vardons Lagoon), small pools with debris, 13.34S 142.32E, 27.x.1992, T. Weir & P. Zborowski (ANIC); 1 ♂ apt., 1 ♀ macr., Culliban Creek, water sweep, 13.39S 142.49E, 27.v.1993, P. Zborowski & A. Roach (ANIC); 4 ♂, 2 ♀ apt., Peach Creek, 13.40S 143.05E, 5.xi.1969, B. Cantrell (ANIC); 1 ♂ apt., Rocky River via Coen, 13.49S 143.28E, 7.xi.1969, B. Cantrell (ANIC); 1 ♂, 1 ♀ macr., Massy Ck, Silver Plains, Cape York Peninsula, small backwash, 13.56S 143.29E, 28.vi.1957, J.L. Wassell (UQIC); 1 ♂ macr., Saltwater Creek, water sweep, 14.47S 143.30E, 26.vi.1993, P. Zborowski & I. Naumann (ANIC); 1 ♀ apt., Mt. Webb Nat. Pk (Humbug Creek), 15.04S 145.07E, 28.ix.1980, T. Weir (ANIC); 1 ♀ apt., Hann River, water sweep, 15.11S 143.52E, 16.viii.1992, P. Zborowski & J. Cardale (ANIC); 2 ♂ apt., 5 km ESE of New Laura, Lakefield Nat. Pk, pool, sandy bottom, lots of debris and algal growth, 15.12S 144.25E, 28.vii.1998, A. Calder (ANIC); 1 ♀ apt., 1 nymph, 14 km WbyN of

Hope Vale Mission, 15.16S 144.59E, 8.x.1980, T. Weir (ANIC); 1♀ apt., 5 km W by N of Rounded Hill, 15.17S 145.10E, 7.x.1980, T. Weir (ANIC); 2♂, 2♀ apt., Bull Creek, water sweep, 15.18S 144.49E, 27.vi.1993, P. Zborowski & I. Naumann (ANIC); 1♂ apt., Normanby River, water sweep, 15.18S 144.51E, 27.vi.1993, P. Zborowski & I. Naumann (ANIC); 1♂ apt., 1 nymph, Endeavour River Falls, water sweep, 15.20S 145.02E, 19.i.1994, P. Zborowski & E.D. Edwards (ANIC); 1♀ apt., Trevethan Creek, water sweep, 15.37S 145.13E, 25.iv.1994, P. Zborowski (ANIC); 2♂ apt., Shepherd Creek, water sweep, 15.46S 144.15E, 17.i.1994, P. Zborowski & E.D. Edwards (ANIC); 1♂ apt., 5 km SSE of Rossville, water sweep. rainforest stream, 15.47S 145.17E, 19.viii.1993, P. Zborowski & J. Balderson (ANIC); 2♂, 2♀ apt., Russell Creek, water sweep, 15.52S 145.19E, 26.iv.1994, P. Zborowski (ANIC); 1♂ apt., 4 km E of Wujal Wujal, water sweep, 15.57S 145.20E, 25.viii.1992, P. Zborowski & J. Cardale (ANIC); 1♀ apt., Cooper Creek, 18 mi [= 27 km] N of Daintree River, 16.10S 145.25E, 14.xi.1969, T. Weir (ANIC); 1♀ macr., 12 km from Mareeba on Molloy Road, CL0141, creek, 16.53S 145.24E, 22.v.1979, I. Lansbury (ANIC); 1♀ apt., Crystal Cascades, via Redlynch, 16.53S 145.42E, 12.xi.1969, T. Weir (ANIC); 1♀ apt., Granite Gorge, 450m, 1657, 17.02S 145.21E, 26.xi.1967, Monteith, Cook & Burwell (QMB); 1♀ apt., Douglas Creek, 480 m, 17.05S 145.30E, 1.viii.1992, E. Nielsen & A. Gillison (ANIC); 3♀ apt., Little Mulgrave River via Gordonvale, 17.07S 145.41E, 11.xi.1969, T. Weir (ANIC); 1♂ apt., Congoo Creek, flowing clear stream, bedrock bottom, mostly sun, rainforest, 17.16S 145.37E, 21.xii.1994, P. Zborowski (ANIC); 1♀ apt., The Boulders via Babinda, 17.20S 145.51E, 8.xi.1969, T. Weir (ANIC); 1♂ apt., North Johnstone River at Malanda, 17.21S 145.36E, 9.xi.1969, T. Weir (ANIC); 1♀ macr., Hemmings Road, Barron River, para grass, slow flow, 17.27S 145.30E, 6.xi.1995, B. Herbert (ANIC); 3♂, 3♀ apt., Palmerston Nat. Pk, 17.37S 145.47E, 10.xi.1969, T. Weir (ANIC); 1♂ apt., 1 nymph, Vine Creek, slow flowing stream, rocky, tannin coloured, half shade, wet sclerophyll forest, 17.40S 145.30E, 14.xii.1994, P. Zborowski (ANIC); 1♀ apt., Atherton Railway Bridge, Mazlin Creek, paragrass, mud, stagnant, 17.51S 145.28E, 29.xi.1994, B. Herbert (ANIC); 2♂ apt., Atherton Railway Bridge, Mazlin Creek, undercut bedrock, slow flow, 17.51S 145.28E, 5.xii.1995, B. Herbert (ANIC); 1♀ apt., Bilyana Creek, 12 mi [= 18 km] N of Cardwell, 18.07S 145.55E, 8.xi.1969, T. Weir (ANIC); 1♂, 4♀ apt., Amphitheatre Springs, 28 km N by E Musselbrook Mining Camp, small spring fed pools, dark water, roots and debris in water, algal growth, scum on surface, 18.21S 138.11E, 12.v.1995, T. Weir (ANIC); 1♀ apt., Musselbrook Ck, 11 km ENE Musselbrook Mining Camp, clear shallow pool in rocky creek bed, sandy bottom, log and twigs in water, 18.34S 138.13E, 15.v.1995, T. Weir (ANIC); 2♂, 1♀ apt., 1♀ macr., Murrays Spring, 8 km WbyN Musselbrook Mining Camp, large pool in rocky creek bed, sandy bottom, water lillies, Pandanus, algal growth, 18.35S 138.03E, 9.v.1995, T. Weir (ANIC); 1♀ macr., Murrays Creek, Musselbrook Mining Camp, small pools in rocky creek bed, sandy bottom, algal growth, 18.36S 138.08E, 10.v.1995, T. Weir (ANIC); 1♂ apt., 1♀ macr., Musselbrook Ck, 2 km S Musselbrook Mining Camp, large pool in rocky creek, sandy bottom, 18.37S 138.08E, 9.v.1995, T. Weir (ANIC); 1♀ apt., Ridgepole Waterhole 24 km ESE Musselbrook, large permanent waterhole, water lillies, nardoo, algal growth, 18.40S 138.20E, 11.v.1995, T. Weir (ANIC); 1♂, 1♀ apt., Indarri Waterfall, Lawn Hill Nat. Pk, large deep permanent pool in gorge near waterfall at tufa dam, flowing creek, 18.42S 138.29E, 16.v.1995, T. Weir (ANIC); 1♂ apt., Leichhardt River at Boggy Lagoon, DNRQ SITE 9130017, 18.43S 139.47E, 29.v.1999, DNRQ (DNRQ); 10♂ 4♀ apt., 5 nymphs, Louie Creek, tufa dam site, Lawn Hill NP, clear flowing creek, sandy bottom, Pandanus and other vegetation, low waterfalls, 18.46S 138.31E, 17.v.1995, T. Weir (ANIC); 10♂ 17♀ apt., 10 nymphs, Louie Ck, near stockyards, Lawn Hill NP, flowing creek, clear water, sandy bottom, Pandanus, debris, some vegetation, 18.47S 138.31E, 17.v.1995, T. Weir (ANIC); 1♀ apt., Little Crystal Creek, via Townsville 1086 ft [=

370 m], 19.01S 146.15E, 7.xi.1969, T. Weir (ANIC); 1♂ apt., Bluewater Creek, 19 miles [= 28.5 km] N of Townsville, 19.11S 146.33E, 7.xi.1969, T. Weir (ANIC); 1 nymph, Alligator Creek, Bowling Green Nat. Pk, shallow flowing creek, rocky & sandy bottom, vegetation, large pools, 19.26S 146.57E, 20.v.1999, T. Weir (ANIC); 1♀ apt., Cedar Creek Falls via Proserpine, 20.24S 148.43E, 5.xi.1969, T. Weir (ANIC); 1♂ 3♀ apt., 1 nymph, Finch Hatton Gorge, via Finch Hatton, 21.04S 148.38E, 3.xi.1969, T. Weir (ANIC). **Western Australia:** 1♂ macr., Cole Creek, CALM SITE KER02, 14.34S 126.24E, 13.v.1998, CALM (ANIC); 1♂ macr., 10 km NW by N Mining Camp, Mitchell Plateau, stop 15, 14.45S 125.47E, 11.v.1983, D.C.F. Rentz & J. Balderson (ANIC); 1♂ apt., 4 km W of King Cascade, CALM site 28/3, pan trap, closed forest, 15.38S 126.15E, 12.vi.1988, T.A. Weir (ANIC); 1♂ apt., Emma Gorge, Emma Creek, CALM SITE ORD10, 15.54S 128.08E, 15.v.1998, CALM (ANIC); 1♂ macr., Anne Creek, Mount Hart, CALM SITE LEN07, 16.46S 124.53E, 21.v.1998, CALM (CALM).

### Family **HEBRIDAE** Amyot & Serville, 1843

#### Velvet water bugs, sphagnum bugs

#### *Hebrus axillaris* Horváth, 1902

##### *Material examined*

*Lectotype* (*Naeogeus latensis* Hale). Macropterous ♂, labelled "River Torrens, Adelaide, S. Aust., Herbert M. Hale" (SAMA).

*Holotype* (*Hebrus woodwardi* Lansbury). Macropterous ♀, labelled "Split Rock, 14 km S of Laura, N. Qld., 23-26.vi.1975, G.B. Monteith" (QMB).

*Paralectotypes* (*Naeogeus latensis* Hale). **South Australia:** 5♂, 13♀ macr., same label data as lectotype (SAMA).

*Paratypes* (*Hebrus woodwardi* Lansbury). **Queensland:** 1♂, 6♀ macr., same label data as holotype (QMB).

*Other material examined.* **New South Wales:** 11♂ macr., Boonoo Boonoo River at Falls EPA Survey - MRHI CLAR 04, 28.48S 152.10E, 11.x.1995, J. Ling (AMS); 4♂, 2♀ brach., Richmond Range State Forest, leaf litter and earth from creek bed, not submerged, subtropical rainforest, 28.48S 152.43E, 27.x.1993, V.W.H. Lorimer (ANIC); 1♀ macr., Cataract River at Sandy Hill EPA Survey - MRHI CLAR 05, 28.56S 152.14E, 10.x.1995, J. Ling (AMS); 1♀ macr., 11.5 km N of Tenterfield, in creek debris, 28.59S 151.56E, 29.ix.1991, Tom Gush (ANIC); 1♀ macr., Bellinger River nr Thora Homelands comm EPA Survey - MRHI BELL m1, 30.26S 152.43E, 13.x.1995, E. Turak (AMS); 3♀ macr., Dingo Tops State Forest, in leaf litter, edge of billabong, 31.42S 152.09E, 26.xi.1992, Vince Lorimer (AMS); 1♂ macr., Tommy Owen's Creek, Brimbin Reserve EPA Survey - MRHI MANN 07, 31.49S 152.26E, 11.x.1995, N. Waddell (AMS); 1♂ macr., Coolongolook River, in leaf litter near creek, 32.16S 152.19E, 23.ix.1991, V.W.H. Lorimer (AMS); 2♂ macr., Wallingat State Forest, under cow pats, 32.16S 152.25E, 21.ix.1991, Tom Gush (AMS); 1♀ macr., Wallingat State Forest, in leaf litter, edge of billabong, 32.16S 152.25E, 21.ix.1991, V.W.H. Lorimer (AMS); 1♀ macr., Wallingat State Forest, leaf litter and mud at edge of drying pond, dry sclerophyll, 32.19S 152.24E, 21.ix.1991, V.W.H. Lorimer (AMS); 1♂ macr., Bayswater Creek EPA Survey - MRHI HUNT m5, 32.27S 151.02E,

17.x.1995, N. Waddell (AMS); 1♀ macr., Wilbertree Flat, pitfall trap, fish bait, damp patch near river, 32.30S 149.35E, 28.i.1991, Tom Gush (ANIC); 1♂ macr., Somersby, 5 km N, in creek debris, 33.19S 151.18E, 12.v.1991, Tom Gush (ANIC); 1♂, 1♀ macr., 1 nymph, Upper Little Cattai Creek EPA Survey - MRHI HAWK 02, 33.31S 150.59E, 13.xii.1995, E. Turak (AMS); 1♂ macr., 4 km SE of Cattai, in creek debris, 33.34S 150.56E, 6.i.1991, Tom Gush (ANIC); 1♀ macr., MacCarrs Creek, 33.40S 151.15E, 22.x.1993, collector unknown (AMS); 1♀ macr., Glenfield, 33.58S 150.53E, date and collector unknown (SAMA); 3♂ macr., Mountain Creek, 4 km from Taemas Bridge, 35.00S 148.51E, 12.v.1985, L. Hill (ANIC); 1♂ macr., Mongarlowe R., 17 km SE of Braidwood, gravel, 35.35S 149.50E, 30.x.1987, L.Hill (ANIC); 1♀ macr., Cabbage Tree Creek, Clyde Mountain, 35.35S 150.01E, 19.viii.1965, R.B. Angus (ANIC); 4♂, 2♀ macr., Deua Nat. Pk, Moruya River, Araleun Valley, 35.48S 149.58E, 5.ii.1983, L. Hill (ANIC); 1♂ macr., Ogilvies Creek EPA Survey - MRHI MURR 29, 36.04S 148.20E, 29.iv.1996, Joanne King (AMS); 1♀ macr., Tooma River u/s Tooma Reservoir EPA Survey - MRHI MURR 25, 36.07S 148.17E, 19.xi.1994, Eren Turak (AMS); 1♂, 2♀ macr., The Lake Ck, 12 km NNE Jindabyne, 1160 m, 36.19S 148.40E, 16.iii.1979, T.A. Weir (ANIC); 1 spec., The Lake Ck, 12 km NNE Jindabyne 1160 m, CL023, 36.19S 148.40E, 16.iii.1979, I. Lansbury (ILC); 2♀ macr., Kara Creek, 13 km NE by E of Jindabyne, 940 m, CL019, 36.21S 148.44E, 16.iii.1979, I. Lansbury (ANIC); 1♂ macr., Bermagui, in weed near swamp, 36.25S 150.04E, 25.iv.1991, Vince Lorimer (AMS); 1♀ macr., Chalkhill's Creek EPA Survey - MRHI Bega 04, 36.54S 149.48E, 27.x.1995, Natacha Waddell (AMS); 1♂, 1♀ macr., Chalkhill's Creek EPA Survey - MRHI Bega 04, 36.54S 149.48E, 5.iii.1996, Joanne Ling (AMS); 1♂, 1♀ macr., Wog Wog R, 4 km NE Mt Wog Wog, Typha pool isolated from stream, 37.05S 149.30E, 25.iii.1996, R.E. Roughley (ANIC). **Northern Territory:** 1♀ macr., 6 km SW by S of Oenpelli, at light, 12.22S 133.01E, 30.v.1973, E.G. Matthews (ANIC); 1♀ macr., 7 km NW by N of Cahills Crossing (East Alligator River); 12.23S 132.56E, 27.v.1973, M.S. Upton (ANIC); 1♀ macr., Berrimah Experimental Farm, 12.26S 130.55E, 30.vi.1971, T. Weir (ANIC); 1♀ macr., Swim Creek Crossing, Point Stuart Station, 12.31S 131.51E, 10.x.1971, T. Weir & A. Allwood (ANIC); 25♂, 14♀ macr. 17 nymphs, Ja Ja Billabong, 6 km N by E of Mudginberri, berlesate, open forest litter, 12.33S 132.53E, 27.xi.1992, M. Storrs (ANIC); 1♂ macr., South Alligator Inn, mv light, 12.40S 132.30E, 7.vii.1979, G. Monteith & D. Cook (QMB); 3♂, 1♀ macr., South Alligator Inn, 12.40S 132.30E, 14.v.1983, J. T. Doyen (ANIC); 1♂ macr., Blackmore River at Southport, 12.46S 131.00E, 14.v.1974, A. Allwood & T. Angeles (ANIC); 2♀ macr., Darwin River Dam, 15 km W of Berry Springs, 12.51S 131.00E, 10.v.1983, J. T. Doyen (ANIC); 2♂, 3♀ macr., Manton Reservoir on Stuart Highway, in flood debris near water edge, 12.51S 131.07E, 9.xii.1979, M.B. Malipatil (NTMD); 1♂ macr., Reynolds River xing, Litchfield NP, pools in flowing river with fringing Pandanus and grass, 13.18S 130.45E, 18.vii.1994, T. Weir & A. Roach (ANIC); 1♂, macr., Red Lily Lagoon, nr Daly River, 13.45S 130.42E, 9.viii.1980, M.B. Malipatil (NTMD); 13♂, 17♀ macr., 10 mi [= 15 km] E of Daly River, at light, 13.45S 130.46E, 28.vi.1972, B.K. Head (SAMA); 1♂, macr., Crocodile Ck near Dorisvale, 14.29S 131.22E, 17.xi.1984, M. Malipatil (NTMD); 1♀ macr., Roper River at Mularark, Eley NP, amongst limestone rocks in flowing river with algal growth, 14.57S 133.12E, 25.vii.1994, T. Weir & A. Roach (ANIC); 1♀ macr., near Sullivan Yard freshwater pool, 15.30S 131.21E, 11.xi.1984, M Malipatil (ANIC); 1♀ macr., Larrimah, at light, 15.35S 133.13E, 8.ix.1982, R.I. Storey (QDPIM); 16♂, 7♀ macr., Victoria R Xing on Victoria Highway, 15.36S 131.07E, 29.iv.1974, T. Weir & T. Angeles (ANIC); 1♂ macr., Gregory Nat. Pk, Roderick Creek, mv light, 15.38S 131.22E, 4.vii.1986, I. Archibold, Operation Raleigh (NTMD); 1♀ macr., Limestone Gorge, mv light, 16.02S 130.23E, 23.vi.1986, M. Malipatil, Operation Raleigh (ANIC); 1♂, 1♀ macr., Bullita Outstation, 16.07S 130.25E, 22.vi.1986, M. Malipatil,

Operation Raleigh (NTMD); 1♂, 2♀ macr., mound springs above Pioneer Creek, West Macdonnells NP, permanent mound spring, bulrushes, mossy growth, 23.41S 132.43E, 8.iii.1995, T. Weir (ANIC); 1♀ macr., Ellery Gorge, 85 km W of Alice Springs, 23.46S 133.04E, 5.xi.1979, T. Weir (ANIC); 1♂, macr., Finke Gorge NP, Boggy Hole, large permanent pool in river bed, grass & bulrushes at edge, algal growth, 24.09S 132.52E, 15.iii.1995, T. Weir (ANIC). **Queensland:** 1♂ macr., Jardine River, Telegraph Line Crossing, 11.09S 142.22E, 15.vi.1969, G. Monteith (ANIC); 1♂ macr., Myall Creek, water sweep, 12.39S 142.16E, 25.v.1993, P. Zborowski & A. Roach (ANIC); 1♀ macr., Willum swamp, near Weipa, 12.40S 142.00E, 13.vii.1994, B. Herbert & J. Peeters (ANIC); 1♂, 1♀ macr., Willum swamp, near Weipa, 12.40S 142.00E, 7.xii.1994, B. Herbert (ANIC); 1♀ macr., Pat Creek 11 km N of Archer Xing, via Coen, 13.23S, 142.53E, 28.vi.1975, G.B. Monteith (QMB); 11♂, 40♀ macr., Langi Lagoon, Mungkan Kandju Nat. Pk, at light, open forest, 13.27S 142.42E, 29.vi.1998, T. Weir (ANIC); 1♀ macr., 27 km NW by W of Rokeby, lagoon with rocks, vegetation and water lilies, 13.31S 142.27E, 27.x.1992, T. Weir & P. Zborowski (ANIC); 1♀ macr., Coen R., 1 km E Rokeby, Mungkan Kandju NP, leaf packets in lagoon, 13.39S 142.41E, 23.vii.1998, A. Calder (ANIC); 1♂ macr., Saltwater Creek, water sweep, 14.47S 143.30E, 26.vi.1993, P. Zborowski & I. Naumann (ANIC); 1♂, 1♀ macr., Hann River, 73 km NW by W of Laura, 15.12S 143.52E, 27.vi.1986, T. Weir & A. Calder (ANIC); 1♀ macr., Bull Creek, water sweep, 15.18S 144.49E, 27.vi.1993, P. Zborowski & I. Naumann (ANIC); 1♀ macr., Normanby River, water sweep, 15.18S 144.51E, 27.vi.1993, P. Zborowski & I. Naumann (ANIC); 1♀ macr., Lambs Head 10 km W of Edmonton, 1200 m, pyrethrum, logs and trees, 17.02S 145.38E, 10.xii.1989, Monteith, Thompson, Janetzki (QMB); 3♀ macr., Barron River at Walkamin, 17.08S 145.26E, 4.vi.1964, R. Elder (QDPIM, UQIC); 1♀ macr., Millstream Falls Nat. Pk, pools below falls, clear, vegetation, full sun, 17.39S 145.27E, 8.xi.1998, T. Weir (ANIC); 1♂, macr., Lacey's Creek, Mission Beach, 17.51S 146.04E, 21.iv.1970, G.B. Monteith (UQIC); 1♀ macr., Cardwell Ra. (South side), rock pool, 18.26S 146.06E, 2.vi.1953, T.E. Woodward (UQIC); 1♂, 2♀ macr., Mt Halifax summit, pitfalls and intercepts, heath, 19.07S 145.23E, 21.iii.1991, D. Cook (QMB); 1♀ macr., Mt Cleveland summit, 500 m, pitfalls and intercepts, rainforest, 19.16S 147.03E, 23.iii.1991, D. Cook (QMB); 1♂, macr., 2 miles [= 3 km] SW of Mt Inkerman, mud at edge of lily ponds, 19.46S 147.29E, 11.xii.1968, Britton & Misko (ANIC); 1♂ macr., White Mountains NP, "Foot Paddock Dam", still pools, murky, sedges, vegetation, rocky base, logs, algae, full sun, 20.27S 144.49E, 5.iv.2000, T. Weir (ANIC); 1♀ macr., Pease's Lookout, Eungella, 900 m, pitfalls and intercepts, rainforest, 21.07S 148.31E, 17.xi.1992, D. Cook & G.B. Monteith (QMB); 1♂ macr., Pioneer River at Marian Mill, DNRQ SITE 125003A, 21.09S 148.56E, 12.v.1998, DNRQ (DNRQ); 1♀ macr., Pioneer River at Balnagowan Crossing, 21.09S 149.01E, 3.xi.1969, T. Weir (ANIC); 1♀ macr., Funnel Creek, waterside mud, 21.47S 148.55E, 13.xii.1968, E. Britton (ANIC); 1 spec., Nagoa River at Raymond, DNRQ SITE 130202A, 24.15S 147.36E, 12.v.1995, DNRQ (DNRQ); 1♂ macr., 25 km N of Monto, in mud at edge of creek, 24.41S 150.58E, 13.xii.1990, Tom Gush (ANIC); 3♂, 3♀ macr., Three Moon Creek, Cania Gorge, wet sand on pool bank, 24.43S 151.01E, 19.xi.1957, T.E. Woodward (UQIC); 1♂ macr., Carnarvon Gorge, 25.03S 148.12E, 29.v.1954, T.E. Woodward (ANIC); 1♀ macr., Carnarvon Gorge NP, base of Amphitheatre, under fan fern, 25.03S 148.12E, 27.xi.1993, G. Cassis (AMS); 1♀ macr., Taroom Dist, Boggomoss No 1 coll 157, 25.26S 150.02E, 8.vi.1996, R. Kristensen (QMB); 1♀ macr., Taroom Dist, Nathan Gorge, pitfalls, riverine forest, 25.27S 150.08E, 13.xi.1996, P. Lawless (QMB); 1♀ macr., Boggomoss No 30 via Taroom, pitfall traps coll 058, 25.29S 150.08E, i.1997, D. Cook & G. Monteith (QMB); 1♀ macr., Taroom Dist. Boggomoss No 2 coll 159, 26.26S 150.01E, 8.vi.1996, R. Kristensen (QMB); 1♀ macr., Beerwah, 26.51S 152.57E, 22.ix.1956, T.E. Woodward (UQIC); 2♂, 10♀ macr., 11 km E of Kilcoy,

in creek debris, 26.56S 152.40E, 19.x.1991, Tom Gush (ANIC); 3♂, 3♀ macr., Kirkleigh near Somerset Dam, wet muddy edges of lake, 27.07S 152.33E, 4.ii.1957, T.E. Woodward (UQIC); 1♂, 3♀ macr., Scarborough. Redcliffe Peninsula, moist sand under grass bank beside mangrove swamp, 27.11S 153.07E, 17.xi.1956, T.E. Woodward (UQIC); 6♂, 5♀ macr., Lake Broadwater 25 km SW of Dalby, 27.21S 151.06E, 12.iv.1986, D.K. Yeates (UQIC); 1♂ macr., Brisbane, 27.28S 153.02E, 2.v.1965, B. Cantrell (UQIC); 1♂ 1♀ macr., Brisbane, 27.28S 153.02E, 7.i.1962, T. Brooks (UQIC); 1♂ macr., Brisbane, 27.28S 153.02E, 20.viii.1962, T. Brooks (UQIC); 1♂, 1♀ macr., Brisbane, 27.28S 153.02E, 22.ix.1962, E.A. Bernays (UQIC); 1♀ macr., Brisbane, 27.28S 153.02E, 14.iv.1957, Haseler (UQIC); 1♀ brach., Myora Creek, North Stradbroke Island, 27.29S 153.25E, 28.ii.1969, T. Weir (UQIC); 1♀ macr., Brown Lake, North Stradbroke Island, 27.29S 153.26E, 27.ii.1969, T. Weir (UQIC); 1♀ macr., Brookfield, 27.30S 152.55E, 7.iv.1957, Haseler (UQIC); 1♂, 2♀ macr., Peel Island, Moreton Bay, 27.30S 153.21E, 20.ix.1951, E.J. Reye (UQIC); 2♀ macr., Lawes, 27.34S 152.20E, 18.xii.1962, G. Monteith (UQIC); 1 spec., Moggill Farm, Brisbane, CL0155, farm dam, 27.34S 152.53E, 6.vi.1979, I. Lansbury (ILC); 1♂ macr., Darlington Range, near Canungra, 27.59S 153.11E, 13.viii.1972, I.D. Naumann (UQIC); 2♂, 3♀ macr., South Emu Creek, via Emu Vale, 28.13S, 152.25E, 22.v.1969, T. Weir (ANIC); 1♀ macr., 14 km NE of Goondiwindi, in debris at edge of pond, 28.29S 150.23E, 25.x.1991, Tom Gush (ANIC); 2♂, 3♀ macr., Stanthorpe, 28.40S 151.56E, 23.iii.1963, A. Macqueen (UQIC); 1 spec., Sundown NP, near Stanthorpe, farm dam, 28.52S 151.40E, 6.iv.1985, I. Lansbury (ILC). **South Australia:** 1♀ macr., Warburton Spring, just S of Beresford Hill, mound spring, 29.17S 136.40E, 7.vi.1983, W. Zeidler (SAMA); 1♂ macr., Coward Springs, bore under planks, 29.24S 136.47E, 3.x.1978, P.J.M. Greenslade (SAMA); 3♂, 3♀ macr., River Torrens, Adelaide, tussocks of thin reeds growing in wet mud on river bank, 34.52S 138.46E, 21.viii.1921, H.M. Hale (SAMA); 1♂ macr., Myponga, 35.23S 138.28E, date unknown, H.M. Hale (SAMA); 1♀ macr., Mount Gambier, 37.50S 140.47E, 4.i.1966, B. Cantrell (UQIC); 2♀ macr., Mount Gambier, 37.50S 140.47E, 4.i.1966, T. Weir (UQIC); 2♂, 2♀ macr., Murray River, date unknown, F.R. Zietz (SAMA). **Tasmania:** 2♀ macr., Devonport, 41.11S 146.21E, date unknown, Lea (SAMA); 1♀ macr., Launceston, 41.26S 147.08E, date and collector unknown (SAMA). **Victoria:** 3♂, 4♀ macr., Halls Gap, Grampian Range, 37.08S 142.31E, 2.i.1966, B. Cantrell (UQIC); 1♀ macr., The Acheron Way, Marysville to Warburton, 37.35S 145.41E, 12.i.1966, T. Weir (UQIC); 1♂, 1♀ macr., Macalister River - Thomson River Junct., Site T26, 38.02S 146.59E, 19.ii.1977, NMV Survey Dept. G.R.E.S. (NTMD); 1 spec., Phillip Island, pool completely covered with floating vegetation, 38.28S 145.14E, 31.iii.1985, I. Lansbury (ILC). **Western Australia:** 1♀ macr., Charnley River, 2 km SW Rolly Hill CALM Site 25/2, at light, closed forest margin, 16.22S 125.12E, 16.vi.1988, I.D. Naumann (ANIC); 1♂ macr., Ellen Brook, Swan River, CALM SITE SWA10, 31.43S 116.02E, 26.viii.1999, CALM (ANIC); 1♀ macr., Cannington, 32.01S 115.57E, 28.xi.1952, R.P. McMillan (WAM); 1 spec., Bickley Road, Canning River, CALM SITE SWA11, 32.01S 115.58E, 3.ix.1999, CALM (ANIC); 1♀ macr., Canning Vale, 32.05S 115.55E, 27.xi.1990, W. Rossi (ANIC); 1 spec., South Dandalup River, CALM SITE MRY11, 32.36S 115.55E, 24.viii.1999, CALM (ANIC); 1♀ macr., Coronation Road, Harvey River, CALM SITE HAR06, 32.52S 115.46E, 31.viii.1999, CALM (ANIC); 1♂, 2♀ macr., Abba River at Busselton, 33.39S 115.20E, 9.viii.1980, J.R. Hanley (ANIC); 2♀ macr., Brennan Bridge, Scott River, CALM SITE BLA14, 34.16S 115.16E, 19.ix.1999, CALM (ANIC); 1♂ macr., Hay River Estate, Hay River, CALM SITE DEN21, 34.44S 117.34E, 8.x.1999, CALM (ANIC); 1♂ macr., Wedding Brook, Frankland River, CALM SITE FRA05, 34.51S 116.44E, 14.x.1999, CALM (ANIC); 1 spec., South Coast Highway, Karri Creek, CALM SITE KEN05, 34.58S 116.59E, 10.x.1999, CALM (ANIC).

*Hebrus nourlangiei* Lansbury, 1990*Material examined*

*Holotype*. Macropterous ♀ labelled "Nourlangie Rock area, Kakadu National park, N.T., 27.iii.1980, M.B. Malipatil" and " in seepage water on rock face" (NTMD).

*Paratypes*. **Northern Territory**: 1♂, 1♀ macr., same label data as holotype [only a slide with antennae and legs is present in NTMD].

*Other material*. **New South Wales**: 1♂ macr., Newry State Forest, 30.31S 152.59E, 31.v.1993, V.W.H. Lorimer (ANIC); 1♀ macr., Stony Creek EPA Survey - MRHI MURR m1, 35.39S 147.46E, 22.xi.1995, N. Waddell (AMS). **Northern Territory**: 1♀ brach., Baroalba Creek Springs, 19 km NE by E of Mt Cahill, Berlesate 449 ANIC, rainforest, 12.47S 132.51E, 16.xi.1972, J. Feehan (ANIC); 1♀ macr., Koongarra Creek, nr Jabiru, Arnhem Land CL0113, 12.50S 132.51E, 8.v.1979, I. Lansbury (ILC); 1♀ macr., Muirella Park, Nourlangie Ck, Kakadu NP, deep billabong, fringing Pandanus, 12.51S 132.45E, 13.vii.1994, T. Weir & A. Roach (ANIC); 2♀ macr., Lightning Dreaming Gorge, 25 km E by S of Mt. Cahill, 12.55S 132.56E, 12.vi.1973, T. Weir (ANIC); 1♂ macr., Gorge NE of Mt Gilruth, 13.02S 133.05E, 10.vii.1979, G.B. Monteith (QMB); 1♂, 1♀ macr., U.D.P. Falls, mv light, 13.26S, 132.25E, 18.vii.1980, M.B. Malipatil, [1♀ identified as *Hebrus woodwardi* by Lansbury] (NTMD); 1♂ macr., Umbrawarra Gorge Nature Park, flowing creek, large rock pools, sandy bottom, 13.58S 131.42E, 20.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 2♀ macr., Station Ck, 1 km NNE Bullita, Gregory NP, small billabong in flowing creek, 16.07S 130.25E, 21.v.2001, T. Weir & P. Bouchard (ANIC); 1♂ macr., Border Waterhole, 15 km W by S Musselbrook Mining Camp (QLD), 17.37S 137.59E, 14.v.1995, T. Weir (ANIC). **Queensland**: 1♀ macr., Cockatoo Creek, flight intercept trap, 11.39S 142.27E, 19.ii.1994, P. Zborowski (ANIC); 2♂, 2♀ macr., Cockatoo Creek, flight intercept trap, 11.39S 142.27E, 22.i.1994, P. Zborowski (ANIC); 2♂, 1♀ macr., Heathlands, FIT ANIC 1239 closed scrub (= heath), 11.45S 142.35E, 26.i.1992, P. Feehney (ANIC); 1♂ macr., Bertie Creek, pools in rocky running creek, 11.50S 142.30E, 21.x.1992, T. Weir & P. Zborowski (ANIC); 1♂, 1♀ macr., Schramm Creek, water sweep, 12.22S 142.37E, 11.viii.1993, P. Zborowski & J. Balderson (ANIC); 18♂, 13♀ macr., 3 km ENE of Mt. Tozer, 12.44S 143.14E, 28.vi.1986, T. Weir & A. Calder (ANIC); 1♀ macr., 11 km W by N of Bald Hill, McIlwraith Range search party campsite, 520 m, 13.44S 143.20E, 27.vi.1989, T.A. Weir (ANIC); 5♂ macr., 11 km W by N of Bald Hill, McIlwraith Range search party campsite, 520 m, pan traps, 13.44S 143.20E, 26.vi.1989, I.D. Naumann (ANIC); 1♂ macr., Upper Lankelly Creek, Coen District, 13.54S 143.14E, 10.vi.1971, G.B. Monteith (UQIC); 7♂, 7♀ macr., Coen, flight intercept trap, 13.57S 143.12E, 23.iv.1994, P. Zborowski (ANIC); 8♂, 6♀ macr., Coen, flight intercept trap, 13.57S 143.12E, 16.xi.1993, P. Zborowski (ANIC); 2♂, 7♀ macr., Coen, flight intercept trap, 13.57S 143.12E, 13.ix.1993, P. Zborowski & D. Rentz (ANIC); 4♂, 4♀ macr., Coen, flight intercept trap, 13.57S 143.12E, 20.x.1993, P. Zborowski & M. Horak (ANIC); 1♂ macr., Saltwater Creek, water sweep, 14.47S 143.30E, 26.vi.1993, P. Zborowski & I. Naumann (ANIC); 1♀ macr., 5 km W by N of Rounded Hill, 15.17S 145.10E, 7.x.1980, T. Weir (ANIC); Queensland, 2♀ macr., Kennedy River Xing, temporary pool in dry river bed, sandy bottom, 15.26S 144.10E, 16.vi.1992, T. Weir (ANIC); 1♂ macr., Cape Tribulation, N of Cairns, streamside flood litter, rainforest, 16.05S 145.28E, 15.vii.1982, S. & J. Peck (ANIC); 2♂ macr., Granite Gorge, 450 m, coll 1657, 17.02S 145.21E, 26.xi.1967, Monteith, Cook & Burwell (QMB); 1♂ macr., Boar Pocket Road, 8 km N of Gillies Highway, Berlesate ANIC 176, leafmould, 17.10S 145.39E, 22.xi.1969, J.G. Brooks (ANIC); 2♂, 1♀ macr., Russell River at Bellenden Ker Landing, pitfalls, rainforest, 17.16S 145.57E, 24.x.1981,



Earthwatch/Qld Museum (QMB); 3♂, 1♀ macr., Russell River at Bellenden Ker Landing, QM Berlesate 349, palm-swamp sieved litter, 17.16S 145.57E, 1.xi.1981, Earthwatch/Qld Museum (QMB); 1♂ macr., Mt Hypipamee Nat. Pk, streamside litter, rainforest, 960 m, 17.26S 145.29E, 24.vii.1982, S. & J. Peck (ANIC); 1♂, 1♀ macr., Hinchinbrook Island, Gayundah Creek, 80 m, QM Berlesate 670, rainforest sieved litter, 18.22S 146.13E, 12.xi.1989, Monteith, Davies, Thompson & Gallon (QMB); 2♀ brach., Louie Ck, near old Stockyards, Lawn Hill NP, flowing creek, clear water, sandy bottom, Pandanus, debris, some vegetation, 18.47S 138.31E, 17.v.1995, T. Weir (ANIC); 1♀ macr., Taroom Dist, Boggomoss No 20 coll 115, pitfalls, 25.25S 150.01E, 11.xi.1996, P. Lawless (QMB); 1♂, 1♀ macr., Taroom Dist, Boggomoss No 7 coll 100, pitfalls, 25.27S 150.02E, 10.ix.1996, P. Lawless (QMB); 1♀ macr., Taroom Dist, Boggomoss No 7 coll 101, pitfalls, 25.27S 150.02E, 11.xi.1996, P. Lawless (QMB). **Western Australia:** 1♀ macr., 4 km S by W of Mining Camp, Mitchell Plateau, stop 17, at light, 14.52S 125.50E, 13.v.1983, D.C.F. Rentz & J Balderson (ANIC).

***Hebrus pilosus*** Andersen & Weir, sp. nov.

*Material examined*

*Holotype.* Macropterous ♀ labelled “Blackmore R. at Southport, N.T., 14.V.1974, T. Angeles & A. Allwood” (ANIC).

*Paratypes.* **Northern Territory:** 2♀ macr., same label data as holotype (ANIC); 1♀ macr., Lake Bennett area c. 25 km SE of Manton Dam, at M.V. light, 29-30.xii.1979, M.B. Malipatil, labelled “*Hebrus woodwardi* Lansbury, Det. I. Lansbury” (NTMD).

***Hebrus monteithi*** Lansbury, 1990

*Material examined*

*Holotype.* Macropterous ♂, labelled “Wallaman Falls, via Ingham, QLD, Q.M. Berlesate No. 231, Rainforest, 500 m, Stick Brushing, 1.x.1980, G.B. Monteith” (QMB);

*Paratypes.* **Queensland:** 4♂, 6♀ macr., same label data as holotype (QMB).

*Other material.* **Queensland:** 27♂, 7♀ macr., Mt Cleveland summit, 500 m, pitfalls and intercepts, 19.16S 147.03E, 22.iii.1991, G. Monteith & D. Cook (QMB); 1♂, 1♀ macr., Mt Cleveland summit, 500 m, rainforest traps, 19.16S 147.03E, i.1991, A. Graham (QMB); 7♂, 14♀ macr., Mt Cleveland summit, 500m, pitfalls and intercepts, rainforest, 19.16S 147.03E, 23.iii.1991, D. Cook (QMB); 1♂, 1♀ macr., Hinchinbrook Island, Gayundah Creek, QM Berlesate 670, rainforest sieved litter, 18.22S 146.13E, 12.xi.1989, Monteith, Davies, Thompson & Gallon (QMB).

***Austrohebrus apterus***, sp. nov.

*Material examined*

*Holotype,* apterous ♀ labelled “Broome, 21.ix.1969, D.D. Giuliani” and “70-2925” (WAM).

*Paratype:* **Western Australia:** 1♀ apt., same locality data as holotype, also labelled “70-2926” (WAM).

***Merragata hackeri*** Hungerford, 1934

*Merragata hackeri* Hungerford, 1934: 70.

*Material examined*

*Paratypes. Queensland:* 2♀ macr., Brisbane, Dec. 1932, H. Hacker (SAMA).

*Other material. New South Wales:* 1♀ macr., Clarence River at Carnham Crossing EPA Survey - MRHI CLAR 17, 29.20S 152.32E, 9.x.1995, E. Turak (AMS); 1♂, macr., Wallace Creek down Testers Hollow EPA Survey - MRHI HUNT m4, 32.47S 151.32E, 17.x.1995, Alexander Leask (AMS). **Northern Territory:** 1♂, 5♀ macr., Jabiru East (Retention Pond No 1), Kakadu NP, man made pond with grassy edges and water lillies, 12.40S 132.54E, 15.vii.1994, T. Weir & A. Roach (ANIC); 3♀ macr., Red Lily Lagoon, nr Daly River, 13.45S 130.42E, 9.viii.1980, M.B. Malipatil (NTMD); 1♂, 1♀ macr., Roper River xing, Mataranka Homestead Rd, 5.5 km E of Mataranka, flowing river, deep billabongs with grassy edges and water lillies, 14.56S 133.07E, 25.vii.1994, T. Weir & A. Roach (ANIC); 2♂, 1♀ macr., Limestone Gorge, Operation Raleigh 1986, freshwater pool, 16.02S 130.23E, 23.vi.1986, M. Malipatil (ANIC, NTMD); 1 spec., Ellery Gorge, nr Alice Springs, West Macdonnells, CL0095, 23.47S 133.04E, 28.iv.1979, I. Lansbury (ILC). **Queensland:** 1♂, 5♀ macr., Burster Creek, reedy pond in creek, 10.56S 142.23E, 17.x.1992, T. Weir & P. Zborowski (ANIC); 1 nymph, Bobs Lagoon, Mungkan Kandju Nat. Pk, permanent lagoon, clear water, lots of floating vegetation, 13.27S 142.44E, 3.vii.1998, T. Weir (ANIC); 1♂ macr., Langi Lagoon, Mungkan Kandju Nat. Pk, at light, open forest, 13.27S 142.42E, 29.vi.1998, T. Weir (ANIC); 4♂, 1♀ macr., Holroyd River, lagoon, 14.22S 142.27E, 14.ix.1993, P. Zborowski & S. Shattuck (ANIC); 56♂, 62♀ macr., 7 nymphs, Bizant, Lakefield Nat. Pk (Python Waterhole), lagoon with water lillies and vegetation, 14.44S 144.07E, 28.x.1992, T. Weir & P. Zborowski (ANIC); 1 spec., Normanby River at Kalpowar Xing, DNRQ SITE 1051010, 14.54S 144.13E, 15.x.1994, DNRQ (DNRQ); 2♂, 1♀ macr., 4 km W of Lakeland, water sweep, 15.51S 144.50E, 30.vii.1992, P. Zborowski & E.S. Nielsen (ANIC); 2 nymphs, Barron River, flowing clear shallow river, wet sclerophyll forest, 17.05S 145.27E, 15.xii.1994, P. Zborowski (ANIC); 28♂, 18♀ macr., 2 nymphs, Petersen Creek, Lake Tinaroo, 17.15S 145.34E, 1.viii.1992, E. Nielsen & A. Gillison (ANIC); 1♂, 1♀ macr., Louie Ck Xing, Lawn Hill NP, flowing creek, silty bottom, floating and other vegetation including water lillies, 18.46S, 138.31E, 17.v.1995, T. Weir (ANIC); 1♂ macr., 1 nymph, Ayr, 19.34S 147.24E, 1.vi.1953, T.E. Woodward (UQIC); 1♂, 1♀ macr., Dawson River at Capricorn Highway, 23.48S 149.46E, 5.iv.1969, T. Weir (UQIC); 1 spec., Burnett River at Mount Lawless, DNRQ SITE 136002D, 25.32S 151.39E, 18.x.1994, DNRQ (DNRQ); 1♀ macr., Youngs Crossing via Petrie, 27.16S 152.57E, 16.v.1965, J. Rand (UQIC); 1♀ macr., Brisbane, 27.28S 153.02E, i.1960, R. Jones (UQIC); 2♀ macr., Brisbane, 27.28S 153.02E, 1.x.1962, B. Willson (UQIC); 4♂, 7♀ macr., Brisbane, 27.28S 153.02E, 2.i.1963, G. Monteith (UQIC); 1♀ macr., Brisbane, 27.28S 153.02E, 25.ix.1962, E.B. Teh (UQIC); 1♂ macr., St Lucia, Brisbane, 27.30S 153.00E, vii.1961, J. Bruce (UQIC); 1 spec., Brisbane, Moggill, CL0154, farm dam, 27.34S 152.53E, 6.vi.1979, I. Lansbury (ILC); 1 spec., Moggill Farm, Brisbane, CL0155, farm dam, 27.34S 152.53E, 6.vi.1979, I. Lansbury (ILC); 1 spec., Sundown NP, near Stanthorpe, in marginal grasses around farm dam, 28.52S 151.40E, 6.iv.1985, I. Lansbury (ILC). **Victoria:** 1♀ macr., Tallandoon Lagoon, 36.26S 147.12E, 3.ii.1975, Dartmouth Survey (NTMD); 1♀ macr., Macalister River - Thomson River Junct., Site T26, 38.02S 146.59E, 19.ii.1977, NMV Survey Dept. G.R.E.S. (NTMD); 1♀ macr., Macalister River - Thomson River Junct., Site T26, swamp, 38.02S 146.59E, 3.vii.1979, N.M.V. Survey Dept. G.R.E.S. (NTMD); 1 spec., Phillip Island, on densely overgrown pool, 38.28S 145.14E, 31.iii.1985, I. Lansbury (ILC). **Western Australia:** 2♂, 1♀ macr.,

Lake Kununurra, Ord River, 15.46S, 128.44E, 19.ix.2000, CALM (ANIC); 11♂, 6♀ macr., 3 nymphs, Spillway Creek, 11 km NNE Ord River Dam, still water at edge of strong flowing creek, aquatic vegetation, algal growth, 16.02S 128.47E, 24.vii.1994, T. Weir & A. Roach (ANIC); 1 spec., Fortescue Falls, Fortesque River, CALM SITE CLM26, 22.29S 118.33E, 29.x.1994, CALM (ANIC).

### Family **HYDROMETRIDAE** Billberg, 1820

Marsh treaders, water measurers

#### *Hydrometra papuana* Kirkaldy, 1901

##### *Material examined*

*Paratypes. Queensland:* 1♂ macr., Cape York Penins., Mjöberg (SAMA).

*Other material. New South Wales:* 1♀ micr., Coldstream River, Collett's Island, EPA Survey - MRHI CLAR 513, 29.42S 153.06E, 7.v.1997, Alexander Leask (AMS). **Northern Territory:** 2♂, 1♀ macr., Melville Is, Palarumpi, Operation Raleigh 1986, mv light, 11.24S 130.25E, 30.vi.1986, P. Horner (NTMD); 1♂ macr., Cooper Creek, 19 km EbyS of Mt Borradaile, 12.06S 133.04E, 5.vi.1973, T. Weir & T. Angeles (ANIC); 1♀ macr., 6 km SW by S of Oenpelli, at light, 12.22S 133.01E, 6.vi.1973, R.L. Kitching (ANIC); 1♂ macr., 1 km N of Cahills Crossing (East Alligator River), 12.25S 132.58E, 7.vi.1973, T. Weir & A. Allwood (ANIC); 1♀ macr., 1 km N of Cahills Crossing (East Alligator River), at light, 12.25S 132.58E, 7.vi.1973, R.L. Kitching (ANIC); 1♂ micr., 3 km NE by E of Cahills Xing, 12.25S 132.59E, 7.vi.1973, T. Weir & T. Angeles (ANIC); 1♀ macr. 1♂, 4♀ micr., Darwin, CL903, swamp, 12.27S 130.50E, 10.xii.1977, J.T. Polhemus (JTPC); 1♀ micr., Howard Springs near Darwin, CL0107, 12.27S 131.03E, 3.v.1979, I. Lansbury (ANIC); 1♂, 1♀ macr., 9 km N by E of Mudginberri H.S., at light, 12.31S 132.54E, 10.vi.1973, R.L. Kitching (ANIC); 3♂, 2♀ macr., 9 km N by E of Mudginberri H.S., 12.31S 132.54E, 10.vi.1973, T. Weir & A. Allwood (ANIC); 1♀ macr. 1♀ micr., Fogg Dam, 35 miles [= 52.5 km] S of Darwin CL0112, 12.34S 131.17E, 4.vi.1979, I. Lansbury (ANIC); 1♂ micr., Mamukala, 29 km W by N Jabiru, Kakadu NP, shallow billabong with grassy edges and water lillies, 12.39S 132.34E, 15.vii.1994, T. Weir & A. Roach (ANIC); 1♀ macr., Arnhem Hwy & Oenpelli Rd junction, mv light, 12.40S 132.50E, 26.vi.1980, M.B. Malipatil (NTMD); 1♀ micr., Jabiru East (Retention Pond No 1), Kakadu NP, man made pond with grassy edges and water lillies, 12.40S 132.54E, 15.vii.1994, T. Weir & A. Roach (ANIC); 1♂ micr., Mulupinbanjo Creek, near Jabiru, CL 917, 12.40S 132.54E, 15.xii.1977, J.T. Polhemus (JTPC); 1♀ macr. 1♂ micr. 2ny?, Georgetown Billabong, Magela Ck, Kakadu NP, billabong with water lillies & vegetation, 12.41S 132.56E, 11.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 1♀ macr. 5♂, 5♀ micr., Arnhem Highway, Flying Fox Creek, CL0134, 12.42S 132.20E, 17.v.1979, I. Lansbury (ANIC); 1♂, 1♀ macr., Flying fox Ck, Kapalga, Kakadu NP, deep billabong with algal growth, 12.42S 132.20E, 15.vii.1994, T. Weir & A. Roach (ANIC); 1♀ macr., 3 nymphs, 12 km NNW of Mt. Cahill, 12.46S 132.39E, 15.vi.1973, T. Weir & T. Angeles (ANIC); 1♀ micr., Kakadu Nat. Pk, Burdulba Billabong S of Arnhem Hwy, on Pine Creek Road, lagoon, 12.46S 132.48E, 27.vi.1980, M.B. Malipatil (NTMD); 1♂ micr., Nourlangie Creek, 8 km N of Mt. Cahill, 12.48S 132.42E, 21.v.1973, T. Weir & T. Angeles (ANIC); 1♂, 1♀ macr., Nourlangie Creek 6 km NE of Mt. Cahill, 12.49S 132.44E, 2.v.1973, T. Weir & T. Angeles (ANIC); 1♀ macr., Koongarra Creek, nr Jabiru,

Arnhem Land CL0113, 12.50S 132.51E, 8.v.1979, I. Lansbury (ANIC); 1♀ macr., 19 km E by N of Mt. Cahill, 12.50S 132.52E, 14.vi.1973, T. Weir (ANIC); 1♂ macr., Muirella Park, Nourlangie Ck, Kakadu NP, deep billabong, fringing Pandanus, 12.51S 132.45E, 13.vii.1994, T. Weir & A. Roach (ANIC); 1♂ macr., 4♂, 3♀ micr., 8 km E by N of Mt. Cahill, 12.51S 132.47E, 22.v.1973, T. Weir & T. Angeles (ANIC); 2♂ macr., Koongarra, 15 km E of Mt Cahill, 12.52S 132.50E, 12.vi.1973, M.S. Upton (ANIC); 1♀ micr., Koongarra near Jabiru, CL0115, small pools, 12.52S 132.51E, 9.v.1979, I. Lansbury (ANIC); 1♂, 1♀ micr., Koongarra, CL916, 12.52S 132.51E, 15.xii.1977, J.T. Polhemus (JTTC); 2♀ macr., 4 miles [= 6 km] SW of Finnis River Station HS, 12.53S 130.32E, 28.vii.1971, T. Weir & A. Allwood (ANIC); 1♀ macr., Arnhem Highway, nr Mary River, CL0130, grassy pools, 12.54S 131.38E, 17.v.1979, I. Lansbury (ANIC); 2♂, 4♀ macr., Finnis River xing, 9 km WNW Batchelor, shallow water with lots of floating leaves, 13.01S 130.57E, 17.vii.1994, T. Weir & A. Roach (ANIC); 2♀ macr., Bamboo Creek Tin Mine, Litchfield Nat. Pk, flowing creek with shaded pools, 13.04S 130.43E, 18.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 1♀ macr., 1♀ micr., Tjaynera Falls (Sandy Ck Falls), Litchfield Nat. Pk, flowing creek with shaded pools, 13.15S 130.47E, 17.vii.1994, T. Weir & A. Roach (ANIC); 2♂, 1♀ macr., 1♂ micr., 1 nymph, Reynolds River xing, Litchfield NP, pools in flowing river with fringing Pandanus and grass, 13.18S 130.45E, 18.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 1♀ micr., Robin Falls near Adelaide River, CL911, pond, 13.21S 131.08E, 12.xii.1977, J.T. Polhemus (JTTC); 1♂ micr., 3 nymphs, Butterfly Gorge Nature Pk, Douglas River, still pools with floating leaves, algal growth, sandy edges, 13.45S 131.34E, 19.vii.1994, T. Weir & A. Roach (ANIC); 3♀ macr., Daly River, 13.46S 130.43E, H. Wesselman (SAMA); 1♂ micr., Daly River, 13.46S 130.43E, collector unknown (SAMA); 1♀ macr., 2♀ micr., Douglas Hot Springs Nature Park, Douglas R., pools in flowing river, algal growth & logs, 13.46S 131.26E, 20.vii.1994, T. Weir & A. Roach (ANIC); 1♀ micr., Hot Springs, Ooloo Station, 13.55S 131.13E, 8.x.1972, N. Forrester (ANIC); 1♀ micr., Katherine Gorge, 14.19S 132.28E, 26.x.1972, E.F. Riek (ANIC); 2♂, 1♀ micr., Katherine, 14.28S 132.16E, 23.i.1971, T. Weir & A. Allwood (ANIC); 1♀ micr., Crocodile Creek near Dorisvale, freshwater pool, 14.29S 131.22E, 17.xi.1984, M. Malipatil (NTMD); 1♀ micr., 7 km SW of Katherine, 14.30S 132.13E, 22.x.1962, E.S. Ross & D.Q. Cavagnaro (JTTC); 5♂, 1♀ macr., 6♂, 4♀ micr., 3 nymphs, Bitter Springs, Roper River, Elsey NP, flowing river, deep billabongs with fringing Pandanus & waterlilies & grass, 14.55S 133.05E, 25.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 5♀ micr., Roper River xing, Mataranka Homestead Rd, 5.5 km E of Mataranka, flowing river, deep billabongs with grassy edges and water lilies, 14.56S 133.07E, 25.vii.1994, T. Weir & A. Roach (ANIC); 2♂, 1♀ macr., Roper River at 4 mile, Elsey Nat Pk, edge of flowing river with grass, reeds & algal growth, 14.56S 133.10E, 25.vii.1994, T. Weir & A. Roach (ANIC); 4♂, 11♀ macr., 2♂, 1♀ micr., 5 nymphs, Roper River at Mulurark, Elsey NP, amongst limestone rocks in flowing river with algal growth, 14.57S 133.12E, 25.vii.1994, T. Weir & A. Roach (ANIC); 2♂, 1♀ macr., 1♂ micr., Salt Creek, Roper Hwy, 21 km SSE Mataranka, flowing creek with muddy edges & rocks, calcium salts encrustation, 15.01S 133.14E, 25.vii.1994, T. Weir & A. Roach (ANIC); 1♂ macr., Warloch Ponds, 35 miles [= 52 km] N of Larrimah, at light, 15.06S 133.06E, 21.vi.1972, B.K. Head (SAMA); 1♀ macr., Sullivan Creek, Gregory NP, deep billabong, rocky edges, 15.35S 131.17E, 21.vii.1994, T. Weir & A. Roach (ANIC); 2♂, 1♀ micr., 1 nymph, Stop No1, Jarnarm Walks, Keep River NP, stagnant pools in creek bed, long fringing grass, 15.45S 129.05E, 23.vii.1994, T. Weir & A. Roach (ANIC); 2♀ macr., 4 km S by E Jarnarm, Keep River NP, deep billabong with waterlilies and fringing grass, 15.48S 129.07E, 27.v.2001, T. Weir & P. Bouchard (ANIC); 2♂, 5♀ micr., Keep River Gorge, Keep River Nat Pk, deep billabong with rocks and floating leaves, etc, 15.50S 129.07E, 22.vii.1994, T. Weir & A. Roach (ANIC); 3♂, 1♀ macr., 3♂ micr., 1 nymph, Cockatoo

Lagoon, Keep River NP, deep billabong with waterlillies and fringing grass, 15.59S 129.02E, 23.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 1♀ micr., Limestone Gorge, Operation Raleigh 1986, 16.02S 130.23E, 23.vi.1986, M. Malipatil (NTMD); 1♀ macr., Limestone Gorge, junction of East Baines R. and Limestone Ck, Gregory NP, pools in flowing creek, muddy and rocky edges, 16.03S 130.23E, 21.vii.1994, T. Weir & A. Roach (ANIC); 2♀ micr., Lake Argyle, mv light, 16.07S 129.01E, 15.xi.1984, M. Malipatil (NTMD); 1♀ micr., Bullita Outstation, East Baines River, Gregory NP, deep billabong, rockshelf at end and algal growth, 16.07S 130.25E, 21.vii.1994, T. Weir & A. Roach (ANIC); 1♂ macr., Station Creek, 1 km NNE Bullita, Gregory NP, shallow flowing water, rocks, leaves, algae, 16.07S 130.25E, 21.v.2001, T. Weir & P. Bouchard (ANIC); 2♂ macr., Station Creek, 1 km NNE Bullita, Gregory NP, small billabong in flowing creek, 16.07S 130.25E, 21.v.2001, T. Weir & P. Bouchard (ANIC); 1♂, 1♀, Armstrong R. Xing, 6 km S Top Springs, 16.36S 131.47E, 12.xi.1984, M. Malipatil (NTMD); 1♂ macr., Border Waterhole, 15 km W by S Musselbrook Mining Camp (QLD), at light, 17.37S 137.59E, 14.v.1995, T. Weir (ANIC); 1♂ macr., Border Waterhole, 15 km W by S Musselbrook Mining Camp (QLD), small rocky pools above gorge, sandy bottom, algal growth, roots in water, 17.37S 137.59E, 14.v.1995, T. Weir (ANIC). **Queensland:** 1♀ macr., Moa Island, 10.11S 142.16E, collector unknown (SAMA); 1♀ micr., Lockerbie, Cape York, 10.48S 142.28E, Jan, 1958, Darlingtons (SAMA); 2♂ micr., Bamaga, Cape York Pen., 10.53S 142.44E, 15.vi.1969, G.B. Monteith (UQIC); 3♂, 8♀ micr., Jardine R at Peninsula Development Rd, CL1761, 11.09S 142.22E, 27.viii.1983, J.T. & D.A. Polhemus (JTTC); 1♀ micr., Catfish Creek, water sweep, 12.08S 142.16E, 11.ix.1993, P. Zborowski & S. Shattuck (ANIC); 1♀ micr., 21 km W by N of Bertiehaugh, water sweep, billabong, 12.10S 142.19E, 14.viii.1993, P. Zborowski & J. Balderson (ANIC); 3♂, 3♀ micr., Bertiehaugh Creek, watersweep, 12.11S 142.21E, 10.ix.1993, P. Zborowski & S. Shattuck (ANIC); 1♀ micr., 10 km SSE of Bertiehaugh, water sweep, 12.16S 142.33E, 13.viii.1993, P. Zborowski & J. Balderson (ANIC); 1♀ macr., 1♀ micr., Schramm Creek, water sweep, 12.22S 142.37E, 11.viii.1993, P. Zborowski & J. Balderson (ANIC); 1♀ macr., Schramm Creek, 12.22S 142.37E, 19.v.1993, P. Zborowski & A. Roach (ANIC); 1♀ macr., Wenlock River, Stone Crossing, 12.23S 142.10E, 14.viii.1993, P. Zborowski & J. Balderson (ANIC); 1♂ macr., Vyces Crossing (Andoom Creek), water sweep, 12.30S 141.53E, 15.viii.1993, P. Zborowski & J. Balderson (ANIC); 5♂, 9♀ micr., Kupandhangan swamp, near Weipa, 12.38S 141.55E, 17.vii.1994, B. Herbert & J. Peeters (ANIC); 1♀ micr., Kupandhangan swamp, near Weipa, 12.38S 141.55E, 27.ix.1994, B. Herbert & C. Agcopra (ANIC); 1♀ macr., Myall Creek, water sweep, 12.39S 142.16E, 25.v.1993, P. Zborowski & A. Roach (ANIC); 1♂ macr., Willum swamp, near Weipa, 12.40S 142.00E, 13.vii.1994, B. Herbert & J. Peeters (ANIC); 1♀ macr., Iron Range, Cape York Peninsula, 12.44S 143.17E, 28.iv.1968, G. Monteith (UQIC); 1♀ macr., 1♀ micr., Wenlock River Crossing, still stagnant pools in dry river bed, 13.06S 142.56E, 26.x.1992, T. Weir & P. Zborowski (ANIC); 1♀ macr., 2♂ micr., Archer River along peninsula development road, CL1749, 13.26S 142.56E, 22.viii.1983, J.T. & D.A. Polhemus (JTTC); 5♂, 3♀ macr., 1♂ micr., 1 nymph, Langi Lagoon, Mungkan Kandju Nat. Pk, large permanent lagoon, clear water at edge, sticks. logs. waterlillies, 13.27S 142.42E, 29.vi.1998, T. Weir (ANIC); 2♂, 1♀ macr., Langi Lagoon, Mungkan Kandju Nat. Pk, at light, open forest, 13.27S 142.42E, 29.vi.1998, T. Weir (ANIC); 2♂, 6♀ macr., 1♂, 1♀ micr., 9 nymph, Bobs Lagoon, Mungkan Kandju Nat. Pk, permanent lagoon, clear water, lots of floating vegetation, 13.27S 142.44E, 3.vii.1998, T. Weir (ANIC); 3♀ micr., 4 nymph, 27 km NW by W of Rokeby, lagoon with rocks, vegetation and water lillies, 13.31S 142.27E, 27.x.1992, T. Weir & P. Zborowski (ANIC); 1♂ macr., 1♂ micr., 16 km ESE of Birthday Mt., water sweep, 13.32S 142.59E, 17.vi.1993, P. Zborowski & I. Naumann (ANIC); 2♂ macr., 1♂, 2♀ micr., 17 km NW by N of Rokeby (Vardons Lagoon), small pools with debris,

13.34S 142.32E, 27.x.1992, T. Weir & P. Zborowski (ANIC); 1♂, 1♀ micr., 1 nymph, 10 km WNW of Rokeby (Mango Lagoon), lagoon with rocks at edge, 13.38S 142.35E, 27.x.1992, T. Weir & P. Zborowski (ANIC); 1♀ macr., Coen R., 1 km E Rokeby, Mungkan Kandju NP, lagoon side channel, sandy bottom, algal growth, 13.39S 142.41E, 23.vii.1998, A. Calder (ANIC); 1♂ macr., Stewart River, S of Coen, CL1747, 14.07S 143.32E, 22.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♂ micr., Pretender Creek, lagoon, 14.08S 142.38E, 14.ix.1993, P. Zborowski & S. Shattuck (ANIC); 1♀ macr., Pinetree Creek near Jowilbinna, CL1742, 14.16S 143.05E, 21.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♀ macr., 1♀ micr., 1 nymph, Muck Creek, Cape Melville, 14.18S 144.26E, 5.vi.1994, B. Herbert & P. Graham (ANIC); 5♂, 5♀ macr., 1♂ micr., Holroyd River, lagoon, 14.22S 142.27E, 14.ix.1993, P. Zborowski & S. Shattuck (ANIC); 4♂, 1♀ macr., Edward River, water sweep, 14.40S 142.06E, 14.ix.1993, P. Zborowski & S. Shattuck (ANIC); 1♂, 1♀ micr., 2 nymph, Normanby Riv, Lakefield NP (Orange Plain waterhole), waterhole with debris and vegetation, 14.43S 144.10E, 29.x.1992, T. Weir & P. Zborowski (ANIC); 1♂ macr., Lukin River water sweep, 14.51S 142.58E, 15.xi.1993, P. Zborowski & S. Shattuck (ANIC); 1♀ macr., 1♂, 1♀ micr., Morehead River (as Moorehead), water sweep, 15.01S 143.39E, 29.vii.1992, P. Zborowski & E.S. Nielsen (ANIC); 9♂, 20♀ macr., 1♀ micr., Hann R. at Peninsula Development Rd, CL1745, 15.11S 143.52E, 21.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♀ macr., 1♂ micr., Hann River, water sweep, 15.11S 143.52E, 16.viii.1992, P. Zborowski & J. Cardale (ANIC); 2♂, 4♀ micr., Hann River, 50 miles [= 75 km] N of Laura, 15.11S 143.52E, 26.x.1969, B. Cantrell (UQIC); 1♀ micr., Normanby R., 7 km E by S New Laura Lakefield NP, small pool, sandy bottom, algal growth, 15.11S 144.24E, 29.vii.1998, A. Calder (ANIC); 1♀ macr., Hann River, 70 miles [= 105 km] S of Coen, 15.12S 143.52E, 27.vi.1970, J.C. Le Souef (MVM); 1♂ macr., 6.5 km ESE Old Laura, Lakefield Nat. Pk, pool, sandy bottom, lots of debris and algal growth (collected at dry end), 15.12S 144.25E, 28.vii.1998, A. Calder (ANIC); 2♂, 1♀ micr., Bull Creek, water sweep, 15.18S 144.49E, 27.vi.1993, P. Zborowski & I. Naumann (ANIC); 1♀ macr., 26 km W of Fairview, 15.35S 144.04E, 22.iv.1989, G. & A. Daniels (UQIC); 1♂, 2♀ macr., Split Rock, 14km S of Laura, 15.39S 144.31E, 23.vi.1975, G.B. Monteith (QMB); 1♂ macr., Shepherd Creek, water sweep, 15.46S 144.15E, 17.i.1994, P. Zborowski & E.D. Edwards (ANIC); 1♀ micr., 4 km W of Lakeland, water sweep, 15.51S 144.50E, 30.vii.1992, P. Zborowski & E.S. Nielsen (ANIC); 8♂, 24♀ macr., Laura River, CL1741, 15.56S 144.50E, 20.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♀ micr., 1 nymph, Julatten, McDougalls Rd, CL0136, waterlilly pool, 16.36S 145.20E, 20.v.1979, I. Lansbury (ANIC); 1♀ micr., Mount Molloy, 16.41S 145.20E, 13.vi.1971, E.F. Riek (ANIC); 1♀ macr., Kuranda, Barron River, 16.49S 145.38E, 11.ix.1965, R.B. Angus (ANIC); 1♀ micr., Yorkeys Knob, 16.49S 145.43E, 6.viii.1958, H.G. Greening (UQIC); 1♀ micr., Barron River, 17.04S 145.27E, 1.viii.1992, E. Nielsen & A. Gillison (ANIC); 1♂ macr., 1♂ micr., 1 nymph, Walkamin Research Stn, pool surface, 17.08S 145.26E, 28.i.1995, B. Herbert (ANIC); 1♀ macr., Tinaroo Falls Daminlet, just below Lookout Point, CL0146, 17.11S 145.33E, 25.v.1979, I. Lansbury (ANIC); 1♀ macr., Amphitheatre Camp, 27 km N by E Musselbrook Mining Camp, small pools in rocky creek bed, sandy bottom, debris in water, clear or murky water, 18.21S 138.10E, 13.v.1995, T. Weir (ANIC); 1♂ macr., Amphitheatre Springs, 28 km N by E Musselbrook Mining Camp, at light, 18.21S 138.11E, 12.v.1995, D.C.F. Rentz (ANIC); 1♂ macr., Amphitheatre Springs, 28 km N by E Musselbrook Mining Camp, at light, 18.21S 138.11E, 12.v.1995, I.D. Naumann (ANIC); 7♂, 2♀ macr., Amphitheatre Springs, 28 km N by E Musselbrook Mining Camp, at light, 18.21S 138.11E, 12.v.1995, T. Weir (ANIC); 1♀ macr., Musselbrook Creek, 19 km N Eby E Musselbrook Mining Camp, large and small pools in gorge, rocky with sandy, pebbly bottom, algal growth, debris, 18.30S 138.17E, 15.v.1995, T. Weir (ANIC); 2♂, 1♀ macr., Musselbrook Creek, 11 km ENE Musselbrook Mining

Camp, clear shallow pool in rocky creek bed, sandy bottom, log and twigs in water, 18.34S 138.13E, 15.v.1995, T. Weir (ANIC); 5♂, 8♀ macr., 1♂, 1♀ micr., Murrays Spring, 8 km W by N Musselbrook Mining Camp, large pool in rocky creek bed, sandy bottom, water lillies, Pandanus, algal growth, 18.35S 138.03E, 9.v.1995, T. Weir (ANIC); 8♂, 14♀ macr., 10 km SE of Musselbrook Mining Camp, at light, 18.39S 138.12E, 13.v.1995, T. Weir (ANIC); 1♀ macr., Ridgepole Waterhole 24 km ESE Musselbrook, 18.40S 138.20E, 19.v.1995, D.C.F. Rentz (ANIC); 1♂, 1♀ macr., 1♂, 5♀ micr., 6 nymph, Ridgepole Waterhole 24 km ESE Musselbrook, large permanent waterhole, water lillies, nardoo, algal growth, 18.40S 138.20E, 11.v.1995, T. Weir (ANIC); 1♂, 7♀ micr., 4 nymph, Louie Creek Xing, Lawn Hill NP, flowing creek, silty bottom, floating and other vegetation including water lillies, 18.46S 138.31E, 17.v.1995, T. Weir (ANIC); 1♂, 2♀ micr., Louie Creek, tufa dam site, Lawn Hill NP, clear flowing creek, sandy bottom, Pandanus and other vegetation, low waterfalls, 18.46S 138.31E, 17.v.1995, T. Weir (ANIC); 19♂, 11♀ micr., 3 nymphs, Louie Creek, near stockyards, Lawn Hill NP, flowing creek, clear water, sandy bottom, Pandanus, debris, some vegetation, 18.47S 138.31E, 17.v.1995, T. Weir (ANIC); 1♂, 2♀ micr., 2 km WNW of Riversleigh HS, Gregory River, 19.01S 138.43E, 26.iv.1986, J.A. Forrest (SAMA); 1♂ micr., Bluewater Creek, 19 miles [= 28.5 km] N of Townsville, 19.11S 146.33E, 7.xi.1969, T. Weir (ANIC); 1♂ micr., White Mountains NP, "Foot Paddock Dam", still pools, murky, sedges, vegetation, rocky base, logs, algae, full sun, 20.27S 144.49E, 5.iv.2000, T. Weir (ANIC); 2♂ macr., Dawson River at Capricorn Highway, 23.48S 149.46E, 5.iv.1969, T. Weir (UQIC); 1♂ micr., Boyne River at Many Peaks, DNRQ SITE 1330015, 24.32S 151.25E, 28.v.1998, DNRQ (DNRQ); 1♀ micr., Brisbane, 27.28S 153.02E, I. Sutherland (UQIC); 1♂ micr., Benowa, 28.00S 153.23E, 22.xi.1946, J. Rosser (UQIC). **Western Australia:** 1♂ macr., Drysdale River Drysdale River survey 1975, Site C5, 14.39S 126.57E, 18.viii.1975, I.F.B. Common & M.S. Upton (ANIC); 3♂, 8♀ macr., Carson Escarpment, Drysdale River survey 1975, site B1, 14.49S 126.49E, 9.viii.1975, I.F.B. Common & M.S. Upton (ANIC); 1♂, Enigma Spring, 14.51S 128.41E, Sep, 2000, CALM (CALM); 1♂ macr., 4 km S by W of Mining Camp, Mitchell Plateau, stop 17, at light, 14.52S 125.50E, 13.v.1983, D.C.F. Rentz & J Balderson (ANIC); 2♂ macr., 1 nymph, Kunmunya Mission, creek through open forest, 15.27S 124.42E, 16.vi.1988, I.D. Naumann (ANIC); 1♀ micr., Kununurra, 15.46S 128.44E, 7.vii.1990, R.P. McMillan (WAM); 2♂, 2♀ macr., Charnley River, 2 km SW Rolly Hill CALM Site 25/2, at light, closed forest margin, 16.22S 125.12E, 16.vi.1988, I.D. Naumann (ANIC); 1♀, Lollywell Spring, 16.59S 122.41E, Sep, 2000, CALM (CALM); 1♀ macr., Noonkanbah, N.V. Austr., 18.31S 124.50E, Mjöberg (SAMA); 3♂ micr., Millstream, Top end of Crossing Pool, 21.35S 117.04E, 20.vii.1958, R.P. McMillan (WAM).

### *Hydrometra feta* Hale, 1925

#### *Material examined*

*Holotype* (*Hydrometra feta*). Macropterous ♀, labelled "Bellenden Ker", "Queensl. Mjöberg", "Typus", and "Hydrometra feta Hale Type" (NRS).

*Holotype* (*Hydrometra halei*). Macropterous ♂, labelled "Cairns, N. Q. 18", "98" [handwritten], "Holotype, Hydrometra halei, Hungerford-Evans", and "Type No. 58596, USNM" (USNM).

*Other material. New South Wales:* 1♀ macr., Peacock Creek, EPA Survey - MRHI CLAR 15, 28.40S 152.43E, 8.v.1995, E. Turak (AMS); 1♂ brach., Plumbago Creek, u/s Confl. Sawpit Creek EPA Survey - MRHI CLAR 524, 28.55S 152.24E, 9.v.1997, Natacha Waddell (AMS); 1♀ brach., Towgon Creek EPA Survey -

MRHI CLAR 18, 29.26S 152.37E, 28.ix.1994, J. King (AMS); 1♂ macr., Towgon Creek, edge, 29.26S 152.37E, 8.x.1995, E. Turak (AMS); 1♂ brach., Mangrove Creek EPA Survey - MRHI CLAR 26, 29.43S 153.09E, 28.ix.1994, J. Ling (AMS); 1♂ brach., Mangrove Creek EPA Survey - MRHI CLAR 26, 29.43S 153.09E, 16.iv.1996, Eren Turak (AMS); 1♂ brach., Sandon River, edge, 29.52S 153.14E, 8.x.1995, J. Ling (AMS); 1♂ brach., Corindi River, Boyles Bridge EPA Survey - MRHI BELL 502, 30.02S 153.05E, 12.v.1997, Natacha Waddell (AMS); 2♀ brach., Kangaroo River EPA Survey - MRHI CLAR 21, 30.03S 152.51E, 11.v.1995, J. Ling (AMS); 1♀ brach., Wooli Wooli River EPA Survey - MRHI CLAR 28, 30.17S 153.10E, 10.x.1998, Eren Turak (AMS); 1♀ brach., Wooli Wooli River EPA Survey - MRHI CLAR 28, 30.17S 153.10E, 13.v.1997, Eren Turak (AMS); 1♂ brach., No Name Creek, Batchelor Rd EPA Survey - MRHI MACL 601, 30.56S 152.24E, 15.iv.1997, Eren Turak (AMS); 1♀ brach., Reedy Creek, Ford on Southern Trail EPA Survey - MRHI HAST 02, 31.09S 152.52E, 18.iv.1996, Eren Turak (AMS); 1♂, 2♀ brach., Trib. of Maria River, EPA Survey - MRHI HAST 601, 31.10S 152.52E, 17.iv.1997, Eren Turak (AMS); 2♂ macr., 4♂, 4♀ brach., Wauchope, stagnant pools off running creek, 31.28S 152.44E, 12.viii.1958, T.E. Woodward (ANIC); 3♂, 7♀ brach., Cowarra Creek, Houston Mitchell Drive EPA Survey - MRHI HAST 01, 31.32S 152.48E, 18.iv.1996, Eren Turak (AMS); 1♂, 1♀ brach., Cowarra Creek, Houston Mitchell Drive EPA Survey - MRHI HAST 01, 31.32S 152.48E, 18.iv.1997, Eren Turak (AMS); 1♂ brach., Cowarra Creek, Houston Mitchell Drive EPA Survey - MRHI HAST 01, 31.32S 152.48E, 6.iv.1998, J. Potts (AMS); 1♂, 1♀ macr., Holey Flat Creek u/s Moorland, EPA Survey - MRHI MANN 02, 31.45S 152.38E, 6.iv.1995, E. Turak (AMS); 1♀ brach., Koorainghat Creek, Gilfillans Road, EPA Survey - MRHI MANN 01, 31.59S 152.31E, 4.xii.1995, J. King (AMS). **Northern Territory:** 1♂ macr., Melville Is, Mirikau-Yunga Ck, 11.31S 130.41E, 5.xii.1996, Brown & Daly (NTMD); 1♂ macr., Melville Is, Taracumbi Falls, 11.38S 130.50E, 4.x.1996, Brown & Daly (NTMD); 1♀ macr., Melville Is, 3 km NE of Pickertaramoor, creek, 11.45S 130.55E, 11.x.1996, Brown & Daly (NTMD); 1♀ macr., Melville Is, Takamprimili Ck, 11.47S 130.46E, 13.x.1996, Brown & Daly (NTMD); 2♂ 3♀ macr., Cooper Creek, 19 km E by S of Mt Borradaile, 12.06S 133.04E, 5.vi.1973, T. Weir & T. Angeles (ANIC); 1♂ macr., Birraduk Creek, 18 km E by N of Oenpelli, 12.16S 133.13E, 1.vi.1973, Upton & McInnes (ANIC); 1♀ macr., Birraduk Creek, 18 km E by N of Oenpelli, 12.16S 133.13E, 4.vi.1973, R.L. Kitching (ANIC); 4♂ macr., Birraduk Creek, 18 km E by N of Oenpelli, 12.16S 133.13E, 1.vi.1973, T. Weir & N. Forrester (ANIC); 1♂, 1♀ macr., Holmes Jungle Nature Park, Darwin, shaded slow flowing stream, closed forest, 12.24S 130.56E, 10.vii.1994, T. Weir & A. Roach (ANIC); 5♂ macr., 1 km N of Cahills Crossing (East Alligator River), at light, 12.25S 132.58E, 7.vi.1973, R.L. Kitching (ANIC); 6♂, 13♀ macr., 3 km NE by E of Cahills Xing, 12.25S 132.59E, 7.vi.1973, T. Weir & T. Angeles (ANIC); 1♂ macr., Howard Springs, 12.27S 131.03E, 28.x.1970, T. Weir (ANIC); 1♂ 2♀ macr., Howard Springs, 12.27S 131.03E, 15.x.1980, M.B. Malipatil (NTMD); 1♂ macr., 9 km N by E of Mudginberri H.S., 12.31S 132.54E, 10.vi.1973, T. Weir & A. Allwood (ANIC); 1♂ macr., 9 km N by E of Mudginberri H.S., 12.31S 132.54E, 26.v.1973, T. Weir & N. Forrester (ANIC); 13♂, 17♀ macr., Berry Springs, 38 miles [= 57 km] S of Darwin, 12.42S 130.59E, 29.vii.1971, T. Weir & A. Allwood (ANIC); 4♂, 1♀ macr., 3♂ brach., Flying fox Creek, Kapalga, Kakadu NP, deep billabong with algal growth, 12.42S 132.20E, 15.vii.1994, T. Weir & A. Roach (ANIC); 1♀ macr., Radon Creek, 12.45S 132.53E, 14.vii.1979, G. Monteith & D. Cook (QMB); 3♂, 2♀ macr., 3♂ brach., Manton River, near Darwin CL0122, 12.49S 131.10E, 15.v.1979, I. Lansbury (ANIC); 1♀ macr., Darwin River Reservoir, 12.50S 130.58E, 7.vii.1980, M.B. Malipatil (NTMD); 5♂, 1♀ macr., 1♂ brach., Manton Dam, 52 km SE by S of Darwin, 12.50S 131.08E, 15.xi.1979, T. Weir (ANIC); 2♂ macr., Arnhem Highway, Wildman River, West branch, CL0131, CL0132, isolated pool, 12.50S 131.57E, 17.v.1979, I.



Lansbury (ANIC); 1♂ macr., 16km E by N of Mt. Cahill, 12.50S 132.51E, 23.v.1973, T. Weir & T. Angeles (ANIC); 1♂ macr., 16km E by N of Mt. Cahill, 12.50S 132.51E, 23.v.1973, T. Weir & T. Angeles (ANIC); 1♂ 1♀ macr., Koongarra Creek, nr Jabiru, Arnhem Land CL0113, 12.50S 132.51E, 8.v.1979, I. Lansbury (ANIC); 1♂ brach., Muirella Park, Nourlangie Ck, Kakadu NP, 12.51S 132.45E, 13.vii.1994, T. Weir & A. Roach (ANIC); 2♂ macr. 1♂ brach., Koongarra, CL916, 12.52S 132.51E, 15.xii.1977, J.T. Polhemus (JTPC); 1♂, 3♀ macr., 1♂ brach., 4 miles [= 6 km] SW of Finnis River Station HS, 12.53S 130.32E, 28.vii.1971, T. Weir & A. Allwood (ANIC); 1♀ macr., Arnhem Highway, lagoon off Mary River, CL0129, 12.54S 131.38E, 17.v.1979, I. Lansbury (ANIC); 4♂ 6♀ macr., 8♂ 13♀ brach., Lightning Dreaming Gorge, 25km E by S of Mt. Cahill, 12.55S 132.56E, 12.vi.1973, T. Weir (ANIC); 12♂, 6♀ macr., 3♀ brach., Inymph, Arnhem Highway, creek 13 km W of Mary River, CL0127, 13.00S 131.33E, 17.v.1979, I. Lansbury (ANIC); 7♂, 5♀ macr. 4♂, 7♀ brach., Inymph, Finnis River xing, 9 km WNW Batchelor, shallow water with lots of floating leaves, 13.01S 130.57E, 17.vii.1994, T. Weir & A. Roach (ANIC); 1♀ macr., Gorge NE of Mt Gilruth, rainforest, 13.02S 133.05E, 10.vii.1979, G.B. Monteith (QMB); 10♂ 4♀ macr., 1♂ 1♀ brach., Coomalie Creek, nr Darwin, CL0121, 13.03S 131.11E, 15.v.1979, I. Lansbury (ANIC); 1♂ macr., Giyamungkurr (Black Jungle Spring), Kakadu Nat. Pk, narrow deep billabong with fringing Pandanus & grass & water lillies, 13.03S 132.10E, 14.vii.1994, T. Weir & A. Roach (ANIC); 1♀ macr., 2♂ brach., Bamboo Ck Tin Mine, Litchfield Nat. Pk, flowing creek with shaded pools, 13.04S 130.43E, 18.vii.1994, T. Weir & A. Roach (ANIC); 1♀ macr., Florence Falls, Litchfield Nat. Pk, flowing creek in closed forest, rocky sides, shaded pools, 13.06S 130.47E, 17.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 2♀ macr., Aida Creek Jumpup, Litchfield NP, shallow flowing creek with pools, 13.08S 130.49E, 17.vii.1994, T. Weir & A. Roach (ANIC); 11♂, 3♀, Stapleton Creek, 105 km S of Darwin, CL0120, 13.11S 131.03E, 13.v.1979, I. Lansbury (ILC); 2♂ macr., Adelaide River, CL912, 13.14S 131.06E, 12.xii.1977, J.T. Polhemus (JTPC); 3♂, 2♀ macr., Tjaynera Falls (Sandy Ck Falls), Litchfield Nat. Pk, flowing creek with shaded pools, 13.15S 130.47E, 17.vii.1994, T. Weir & A. Roach (ANIC); 1♂, 1♀ macr., 1♂, 1♀ brach., Reynolds River xing, Litchfield NP, pools in flowing river with fringing Pandanus and grass, 13.18S 130.45E, 18.vii.1994, T. Weir & A. Roach (ANIC); 13♂, 1♀ macr., 1♂ 3♀ micr. [?], Robin Falls near Adelaide River, CL910, 13.21S 131.08E, 12.xii.1977, J.T. Polhemus (JTPC); 2♂ brach., Robin Falls near Adelaide River, CL911, 13.21S 131.08E, 12.xii.1977, J.T. Polhemus (JTPC); 2♂ macr., Robin Falls, 12 km S of Adelaide River, 13.21S 131.08E, 20.iv.1972, T. Weir & T. Angeles (ANIC); 1♀ macr., Robin Falls, 12 km S of Adelaide River, 13.21S 131.08E, 9.viii.1980, M.B. Malipatil (NTMD); 6♂, 6♀ macr., 1♂, 1♀ brach., Alligator Creek near Daly River, CL909, 13.32S 130.53E, 11.xii.1977, J.T. Polhemus (JTPC); 1♂ macr., 8♂, 4♀ brach., Mary River, 37 miles [56 km] E of Pine Creek, 13.36S 132.08E, 9.vii.1971, T. Weir & A. Allwood (ANIC); 1♂ macr., Daly River, 13.46S 130.43E, date and collector unknown (SAMA); 1♂, 3♀ macr., 1♂, 1♀ brach., Douglas Hot Springs Nature Park, Douglas R., pools in flowing river, algal growth & logs, 13.46S 131.26E, 20.vii.1994, T. Weir & A. Roach (ANIC); 1♂ macr., Katherine Gorge Nat. Pk Butterfly Gorge, freshwater stream, 14.19S 132.27E, 5.xii.1980, M.B. Malipatil (NTMD); 1♀ brach., Katherine River, 20 km E of Katherine, 14.28S 132.27E, 5.x.1977, G.F. Gross (SAMA); 3♂, 1♀ macr., 4♂, 2♀ brach., 7 km SW of Katherine, 14.30S 132.13E, 22.x.1962, E.S. Ross & D.Q. Cavagnaro (JTPC); 1♂ macr., Limestone Gorge, junction of East Baines R. and Limestone Creek, Gregory NP, pools in flowing creek, muddy and rocky edges, 16.03S 130.23E, 21.vii.1994, T. Weir & A. Roach (ANIC); 1♂ brach., Kakadu NP, Ngarradj Warde Kjobkeng, on grass & sedges, 27.vi.1980, M.B. Malipatil (NTMD).

**Queensland:** 5♂, 3♀ macr., Big Creek, near Cape York, CL1765, 10.43S 142.31E, 29.viii.1983, J.T. & D.A. Polhemus (JTPC); 4♂, 3♀ macr., Laradeenya Creek, still pools in dry creek bed, 10.46S 142.27E, 17.x.1992, T.

Weir & P. Zborowski (ANIC); 2♂ macr., 10 km SSW of Cape York, stagnant pools in creek, 10.46S 142.30E, 15.xi.1992, T. Weir & P. Zborowski (ANIC); 2♀ macr., 1 nymph, Lockerbie, Cape York, 10.48S 142.28E, 10.vi.1969, G.B. Monteith (ANIC); 1♂ macr., Lockerbie, Cape York, 10.48S 142.28E, 6.vi.1969, G.B. Monteith (ANIC); 3♂, 2♀ macr., Jardine R at Peninsula Development Rd, CL1761, 11.09S 142.22E, 27.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♂ brach., Jardine River, Telegraph Line Crossing, 11.09S 142.22E, 15.vi.1969, G. Monteith (UQIC); 2♂, 2♀ macr., Dulhunty River (as Dalhousie River), water sweep, 11.50S 142.30E, 10.ix.1993, P. Zborowski & S. Shattuck (ANIC); 1♂ brach., Rocky Creek Xing, water sweep, 12.06S 142.34E, 17.viii.1992, P. Zborowski & J. Cardale (ANIC); 1♂ macr., Palm Creek, water sweep, 12.08S 142.04E, 19.v.1993, P. Zborowski & A. Roach (ANIC); 1♂ brach., Catfish Creek, water sweep, 12.08S 142.16E, 11.ix.1993, P. Zborowski & S. Shattuck (ANIC); 2♂ macr., Bertiehaugh Creek, watersweep, 12.11S 142.21E, 13.viii.1993, P. Zborowski & J. Balderson (ANIC); 4♂ macr., 10 km SSE of Bertiehaugh, water sweep, 12.16S 142.33E, 13.viii.1993, P. Zborowski & J. Balderson (ANIC); 2♂, 2♀ macr., Ling Creek, water sweep, 12.19S 142.10E, 14.viii.1993, P. Zborowski & J. Balderson (ANIC); 2♂ macr., Glennie Creek, running creek, 12.21S 143.00E, 23.x.1992, T. Weir, P. Zborowski (ANIC); 1♂, 1♀ macr., 3♀ brach., Schramm Creek, 12.22S 142.37E, 17.viii.1992, P. Zborowski & J. Cardale (ANIC); 2♂ macr., Schramm Creek, water sweep, 12.22S 142.37E, 11.viii.1993, P. Zborowski & J. Balderson (ANIC); 1♂ macr., Schramm Creek, 12.22S 142.37E, 19.v.1993, P. Zborowski & A. Roach (ANIC); 1♀ macr., Wenlock River, water sweep, 12.27S 142.38E, 8.xi.1993, P. Zborowski & S. Shattuck (ANIC); 1♂, 1♀ macr., 2♀ brach., Wenlock River, Peninsula Development Rd (Moreton) CL1756, 12.27S 142.38E, 26.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♀ macr., Vyces Crossing (Andoom Creek), water sweep, 12.30S 141.53E, 15.viii.1993, P. Zborowski & J. Balderson (ANIC); 1♂ macr., Batavia Downs HS, sweeping water, still pool, 12.40S 142.40E, 11.xii.1992, W. Dressler & P. Zborowski (ANIC); 1♀ macr., Lydia Creek, water sweep, 12.40S 142.40E, 7.ix.1993, P. Zborowski & S. Shattuck (ANIC); 1♀ macr., Canoe Creek, still pools in dry creek bed, 12.48S 143.03E, 26.x.1992, T. Weir & P. Zborowski (ANIC); 1♀ macr., Heskett Creek, water sweep, 12.54S 142.45E, 19.v.1994, P. Zborowski (ANIC); 4♂, 1♀ macr., Archer River along peninsula development road, CL1749, 13.26S 142.56E, 22.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♂ macr., Archer River, water sweep, 13.33S 143.03E, 28.vii.1992, P. Zborowski & E.S. Nielsen (ANIC); 2♀ macr., 17km NW by N of Rokeby (Vardons Lagoon), small pools with debris, 13.34S 142.32E, 27.x.1992, T. Weir & P. Zborowski (ANIC); 1♂, 1♀ macr., Coen R., 1km E Rokeby, Mungkan Kandju NP, lagoon side channel, sandy bottom, algal growth, 13.39S 142.41E, 23.vii.1998, A. Calder (ANIC); 1♂, 1♀ macr., Massy Creek, Silver Plains, Cape York Peninsula, small backwash, 13.56S 143.29E, 28.vi.1957, J.L. Wassell (UQIC); 1♂ macr., Massy Creek, Silver Plains, Cape York Peninsula, small pool, 13.56S 143.29E, 26.vi.1957, J.L. Wassell (UQIC); 1♂, 1♀ macr., 1♂ brach., Coen River at Coen, CL1748, 13.57S 143.12E, 22.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♀ macr., Coen, Cape York Peninsula, 13.57S 143.12E, 27.xi.1969, B. Cantrell (UQIC); 1♀ macr., Silver Plains (Homestead) Cape York Penins., 13.59S 143.33E, 29.vi.1957, J.L. Wassell (UQIC); 8♂, 5♀ macr., 1♂ brach., Stewart River, S of Coen, CL1747, 14.07S 143.32E, 22.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♂ macr., Pretender Creek, lagoon, 14.08S 142.38E, 14.ix.1993, P. Zborowski & S. Shattuck (ANIC); 3♂, 4♀ macr., 4♂, 2♀ brach., 1♂ micr (?), Pinetree Creek near Jowilbinna, CL1742, 14.16S 143.05E, 21.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♂, 2♀ macr., Duckhole Creek, water sweep, 14.25S 143.22E, 25.vi.1993, P. Zborowski & I. Naumann (ANIC); 2♂ macr., 2♂ brach., 1 nymph, 3 km NE of Mt. Webb, 15.03S 145.09E, 1.x.1980, T. Weir (ANIC); 3♂, 2♀ macr., 1♀ brach., 1♂ micr (?), Hann R. at Peninsula Development Rd, CL1745, 15.11S 143.52E, 21.viii.1983, J.T. & D.A. Polhemus (JTPC); 2♂ macr.,

1♂ brach., Hann River, water sweep, 15.11S 143.52E, 16.viii.1992, P. Zborowski & J. Cardale (ANIC); 3♂ macr., Normanby R., 7 km Eby S New Laura Lakefield NP, small pool, sandy bottom, algal growth, 15.11S 144.24E, 29.vii.1998, A. Calder (ANIC); 2♂, 2♀ macr., 7 km N of Hope Vale Mission, 15.14S 145.07E, 4.x.1980, T. Weir (ANIC); 1♂ macr., Miller's Crossing 30 ml. N. of Cooktown, 15.15S 145.06E, 24.xi.1965, G. Monteith (UQIC); 1♂, 2♀ macr., 1 nymph, 5 km W by N of Rounded Hill, 15.17S 145.10E, 7.x.1980, T. Weir (ANIC); 2♂ brach., Endeavour River Falls, water sweep, 15.20S 145.02E, 19.i.1994, P. Zborowski & E.D. Edwards (ANIC); 1♂ macr., 2♂ brach., Little Laura River, CL1744, 15.30S 144.21E, 21.viii.1983, J.T. & D.A. Polhemus (JTPC); 6♂, 4♀ macr., Annan River, CL1737, 15.41S 145.12E, 19.viii.1983, J.T. & D.A. Polhemus (JTPC); 3♀ macr. 1♂ brach., Shepherd Creek, water sweep, 15.46S 144.15E, 17.i.1994, P. Zborowski & E.D. Edwards (ANIC); 1♂ macr., Gap Creek, at light, 15.51S 145.20E, 18.ii.1993, P. Zborowski (ANIC); 2♂ macr., 2 nymphs, Laura River, water sweep, 15.56S 144.50E, 30.vii.1992, P. Zborowski & E.S. Nielsen (ANIC); 3♂, 3♀ macr. 1♀ brach., 2 nymphs, Cooper Creek, 18 mi [= 27 km] N of Daintree River, 16.10S 145.25E, 14.xi.1969, T. Weir (ANIC); 3♂ macr., Cooper Creek estuary nr Cape Tribulation, CL1734, 16.11S 145.26E, 17.viii.1983, J.T. & D.A. Polhemus (JTPC); 13♂, 5♀ macr., Hutchinsons Creek, Cape Tribulation Road, CL1733, 16.13S 145.24E, 17.viii.1983, J.T. & D.A. Polhemus (JTPC); 7♂, 4♀ macr., Mossman River, 16.28S 145.21E, 18.viii.1983, J.T. & D.A. Polhemus (JTPC); 4♂, 18♀ macr., 1♀ brach., McLeod River near Mt Carbine, CL1736, 16.30S 145.00E, 20.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♂ macr., Julatten, CL0139, creek in deep gully, 16.36S 145.20E, 20.v.1979, I. Lansbury (ANIC); 2♀ macr., 1♂ brach., Julatten, CLO138, rainforest creek, 16.36S 145.20E, 21.v.1979, I. Lansbury (ANIC); 22♂, 25♀ macr., 2♂ brach., Mount Molloy, 16.41S 145.20E, 13.vi.1971, E.F. Riek (ANIC); 1♂, 2♀ macr., 1♂ brach., 2 nymphs, Crystal Cascades, via Redlynch, 16.53S 145.42E, 12.xi.1969, T. Weir (ANIC); 1♂, 2♀ macr., Davies Creek NP, CL1729, 16.57S 145.32E, 16.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♂ macr., Mareeba dist., Kennedy Hwy crossing of Davies Ck, Snow Bridge, 16.57S 145.32E, 1.v.1998, G. Cassis & S. Davies (ANIC); 1♂ macr., Hambleton Mill, 7miles S of Cairns, 17.01S 145.43E, 10.ix.1965, R.B. Angus (ANIC); 2♂, 1♀ macr., 1♂ brach., Tinaroo Creek, 17.03S 145.28E, 1.viii.1992, E. Nielsen & A. Gillison (ANIC); 1♂ macr., 2♂, 1♀ brach., Douglas Creek, 480m, 17.05S 145.30E, 1.viii.1992, E. Nielsen & A. Gillison (ANIC); 4♂, 3♀ macr., Upper Mulgrave River at Goldsborough Rd CL 1726, 17.08S 145.45E, 15.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♂ macr., Poison Creek, Irvinebank, 17.26S 145.12E, 11.v.1970, P. Kerridge (ANIC); 1♀ brach., 7 km W of Mission Beach, CL1721, 17.52S 146.02E, 14.viii.1983, J.T. & D.A. Polhemus (JTPC); 2♂, 3♀ macr., 6 km E of Murray Falls, CL1719, 18.09S 145.52E, 13.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♀ macr., Whitfield Creek, 6 miles [9 km] N of Cardwell, 18.12S 145.58E, 8.xi.1969, T. Weir (ANIC); 3♂, 6 km N of Cardwell, 18.13S 146.01E, 25.iv.1985, F.S. Truxal (LACM); 4♂, 4♀ macr., 1♂, 2♀ brach., Amphitheatre Springs, 28 km N by E Musselbrook Mining Camp, small spring fed pools, dark water, roots and debris in water, algal growth, scum on surface, 18.21S 138.11E, 12.v.1995, T. Weir (ANIC); 1♂, 1♀ brach., Louie Creek, near stockyards, Lawn Hill NP, flowing creek, clear water, sandy bottom, Pandanus, debris, some vegetation, 18.47S 138.31E, 17.v.1995, T. Weir (ANIC); 2♂, 1♀ macr., Jourama Falls Nat. Pk, CL1716, 18.52S 146.07E, 13.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♂ macr., Don R. nr. Bowen, Cent. coastal Qld, pools, 20.01S 148.15E, 28.v.1953, T.E. Woodward (UQIC); 1♀ macr., Repulse Creek u/s Impulse Creek junction, DNRQ SITE 1220042, 20.22S 148.44E, 9.vi.1998, DNRQ (DNRQ); 2♂ macr., 1 nymph, White Mountains NP, "Rugged Gorge" camp, flowing stream, pools, clear, sandy bottom, sticks, leaf packets, vegetation, full sun, 20.23S 144.47E, 31.iii.2000, T. Weir (ANIC); 2♂, 3♀ macr., 1♂, 1♀ brach., 4 nymphs, White Mountains NP, gorge off "Rugged Gorge", flowing stream with pools, clear, sandy &

pebbly bottom, logs, sticks, vegetation, half shade, 20.24S 144.47E, 1.iv.2000, T. Weir (ANIC); 2♂, 3♀ macr., 3♂, 2♀ brach., 10 nymphs, White Mountains NP, 2 km NE of RGSQ/AG Base Camp, deep rocky pool, cloudy, sandy bottom, vegetation, half shade, 20.26S 144.51E, 5.iv.2000, T. Weir (ANIC); 1♂ brach., Eungella Nat. Pk, via Dalrymple Heights, 21.11S 148.29E, 4.xi.1969, T. Weir (ANIC); 1♀ brach., Carnarvon Gorge NP, "9-1d Pool, 25.03S 148.12E, 27.xi.1993, G. Cassis (AMS); 3♂, 5♀ brach., Imbil State Forest, 26.28S 152.41E, 5.xi.1957, T.E. Woodward (UQIC); 1♀ brach., Coolum, 26.33S 153.05E, 10.iv.1971, G.R.M. Grant (UQIC); 7♂, 1♀ macr., 3♂ 6♀ brach., South Pine River via Samford, 27.22S 152.22E, 16.ii.1969, T. Weir (UQIC); 1♀ brach., Cedar Creek, 27.22S 152.53E, 19.iv.1966, A. Allwood (UQIC); 1♂ brach., Samford, 27.22S 152.53E, 9.x.1965, B. Cantrell (UQIC); 2♂ brach., Highvale, 27.23S 152.48E, v.1970, J. Toop (UQIC); 1♂ brach., Highvale via Samford, 27.23S 152.48E, 26.xii.1967, G.J. Toop (UQIC); 1♂ brach., Ashgrove, Brisbane, Walton Bridge, 27.27S 152.59E, 3.v.1960, T.E. Woodward (UQIC); 1♀ brach., Brisbane, 27.28S 153.02E, 23.viii.1954, A.G. Barrie (UQIC); 1♂ brach., Brisbane, 27.28S 153.02E, 14.iii.1948, C. Hoey (UQIC); 1♀ brach., Brisbane, 27.28S 153.02E, 30.v.1962, F.J.D. McDonald (UQIC); 1♀ brach., Brisbane, 27.28S 153.02E, 8.iii.1943, P.J. O'S (UQIC); 1♂ macr., Brisbane, 27.28S 153.02E, 12.iv.1955, A.J. Cowan (UQIC); 1♀ brach., Brisbane, 27.28S 153.02E, 2.v.1931, F.A. Perkins (UQIC); 1♂ 1♀ macr., 2♂, 1♀ brach., 1 nymph, Brisbane, 27.28S 153.02E, 14.iv.1912, H. Hacker (QMB); 3♂, 4♀ brach., Cedar Falls, Brisbane area, CL0158, 27.28S 153.02E, 7.vi.1979, I. Lansbury (ANIC); 1♀ brach., Brookfield, 27.30S 152.55E, 10.vi.1960, L.E. Williams (UQIC); 2♂ brach., St Lucia, Brisbane, 27.30S 153.00E, 25.v.1953, Y.P. Berri (UQIC); 1♀ brach., Sunnybank, 27.35S 153.03E, 8.x.1932, collector unknown (UQIC); 1♀ brach., Sunnybank, 27.35S 153.03E, 15.i.1950, B. Champ (UQIC); 1♂ macr., Rathdowney, 28.13S 152.52E, 12.iii.1966, E. Mann (UQIC); 1♂ brach., Mt. Lindesay [as Lindsay], 28.21S 152.43E, 27.iii.1965, J. Rand (UQIC). **Western Australia:** 3♂ macr., Carson Escarpment, Drysdale River survey 1975, site B1, 14.49S 126.49E, 9.viii.1975, I.F.B. Common & M.S. Upton (ANIC).

### *Hydrometra illingworthi* Hungerord & Evans, 1934

#### *Material examined*

*Holotype.* Macropterous ♂, labelled "Cairns, N. Q., 17", "J.F. Illingworth Collector", "Holotype, Hydrometra Illingworthi, Hungerford-Evans", and "Type No. 58595, USNM" (USNM).

*Other material. Queensland:* 1♀ macr., 2♂, 1♀ brach., 1 nymph, Moses Creek, 4 km N by E Mt Finnigan, 15.47S 145.17E, 14.x.1980, T. Weir (ANIC); 1♂ macr., Mossman Gorge, via Mossman, 16.28S 145.20E, 13.xi.1969, T. Weir (ANIC); 4♂, Julatten, CLO138, rainforest creek, 16.36S 145.20E, 21.v.1979, I. Lansbury (ILC); 1♀ macr., Cairns, 16.55S 145.56E, 1917, I.F. Illingworth (BPBM); 1♂ brach., Kauri Creek, flowing clear shallow stream, sandy bottom, partial shade, rainforest, 17.08S 145.36E, 12.xii.1994, P. Zborowski (ANIC); 1♀ macr., Kauri Creek, para grass, slow flow, 17.08S 145.36E, 12.i.1995, B. Herbert (ANIC); 1♀ brach., Kauri Creek, para grass, slow flow, 17.08S 145.36E, 11.x.1995, B. Herbert (ANIC); 1♂ brach., Robson Creek, flowing clear shallow stream, sandy bottom, partial shade, rainforest, 17.08S 145.38E, 12.xii.1994, P. Zborowski (ANIC); 3♂, 1♀ macr., The Boulders via Babinda, 17.20S 145.51E, 14.viii.1983, J.T. & D.A. Polhemus (JTTC); 1♀ macr., Hemmings Road, Barron River, para grass, slow flow, 17.27S 145.30E, 6.xi.1995, B. Herbert (ANIC); 1♂ brach., Millaa Millaa Falls c. 2000ft [= 670 m], 17.30S 145.37E, 10.xi.1969, T. Weir (ANIC); 2♀ brach., 5 nymphs, Palmerston Nat. Pk, 17.37S 145.47E, 10.xi.1969, T. Weir (ANIC); 1♂, 1♀ brach., Dunk Island, 17.57S

146.09E, viii.1927, H. Hacker (QMB); 1♂ brach., Dunk Island, 17.57S 146.09E, 25.viii.1927, collector unknown (UQIC).

***Hydrometra claudie* J. Polhemus & Lansbury, 1997**

*Material examined*

*Holotype*, macropterous ♂, labelled "AUST., Queensland, Claudie River, Iron Range, CL 1752, VIII-24-83, J.T. & D.A. Polhemus" (ANIC).

*Paratypes. Queensland:* 1♀ brach. Chili Beach, Iron Range, CL1753, 12.40S 143.24E, 24.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♀ macr., 1♂, 1♀ brach., Gordon Ck Iron Range, CL1755, 12.43S 143.18E, 24.viii.1983, J.T. & D.A. Polhemus (JTPC); 6♂, 2♀ macr., 4♂, 5♀ brach., same locality data as holotype, 12.45S 143.14E (BPBM, JTPC); 1♂, 1♀ macr., 4♀ brach., Claudie River, near Mt. Lamond, 12.46S 143.17E, 26.v.1966, D.K. McAlpine (AMS).

*Other material. Queensland:* 1♀ macr., 5 km WNW of Captain Billy Landing, water sweep, 11.37S 142.48E, 20.v.1993, P. Zborowski & A. Roach (ANIC); 1♂ macr., Bertie Creek, water sweep, 11.50S 142.30E, 17.iii.1994, P. Zborowski (ANIC); 1♂ macr., Dulhunty River [as Dalhousie River], water sweep, 11.50S 142.30E, 10.ix.1993, P. Zborowski & S. Shattuck (ANIC); 2♂, 2♀ macr., Glennie Creek, running creek, 12.21S 143.00E, 23.x.1992, T. Weir, P. Zborowski (ANIC); 6♂, 5♀ macr., 6♂, 16♀ brach., 1 nymph, 9 km NNW of Lockhart River, stagnant pools in dry creek bed, closed forest, 12.43S 143.18E, 25.x.1992, T. Weir & P. Zborowski (ANIC); 1♂ macr., 1♂ brach., Cooks Hut, 1 km N of Lamond Hill, Iron Range Nat. Pk, in flowing creek, 12.43S 143.18E, 19.vii.1998, A. Calder (ANIC); 3♂, 3♀ macr., 1♀ brach., 3 km ENE of Mt. Tozer, 12.44S 143.14E, 28.vi.1986, T. Weir & A. Calder (ANIC); 1♂ macr. [as *Hydrometra feta* in J. Polhemus and Lansbury 1997], Iron Range, Cape York Peninsula, 12.44S 143.17E, 2.vi.1971, E.F. Riek (ANIC); 7♂, 4♀ macr., 2♂, 2♀ brach., 3 nymphs, West Claudie River, closed forest, still rocky pools in non flowing stream, 12.45S 143.14E, 24.x.1992, T. Weir & P. Zborowski (ANIC); 2♂, 6♀ macr., Rocky River, McIlwraith Range via Coen, 13.49S 143.28E, 6.xi.1969, B. Cantrell (UQIC).

***Hydrometra jourama* J. Polhemus & Lansbury, 1997**

*Material examined*

*Holotype*. Macropterous ♂, labelled "AUST., Queensland, Jourama Falls Nat. Park, CL 1716, VIII-13-83, J.T. & D.A. Polhemus" (ANIC).

*Paratypes. Queensland:* 1♀ macr., 6 km E of Murray Falls, CL1719, 18.09S 145.52E, 13.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♀ brach., Murray Falls Road, CL1720, pond, 18.09S 145.49E, 13.viii.1983, J.T. & D.A. Polhemus (JTPC); 20♂, 35♀ macr., same locality data as holotype, 18.52S 146.07E (ANIC, BPBM, JTPC).

*Other material. Queensland:* 1♀ macr., Moa (Banks) Is, Torres Strait, Eet Hill vicinity, 10.11S 142.16E, 9.vii.1977, G. Monteith & D. Cook (QMB); 2♂, 2♀ brach., Dinah Creek, water sweep, 12.37S 141.55E, 19.ii.1994, P. Zborowski (ANIC); 7♂, 15♀ macr., Kupandhangan swamp, near Weipa, 12.38S 141.55E,

27.ix.1994, B. Herbert & C. Agcopra (ANIC); 3♂, 2♀ macr., Herbert River, Ingham, 18.39S 146.10E, xii.1957, Darlingtons (SAMA).

***Hydrometra strigosa* (Skuse, 1893)**

*Material examined*

*Lectotype* (*Limnobates strigosa*). Macropterous ♂ [slide mounted; not seen], labelled "Botany Swamps", date and collector unknown (AMS: K68633).

*Paralectotypes*. **New South Wales**: 1♀ macr. [head missing], labelled "Botany, Sydney, N. S. Wales", collector unknown (AMS), 1♀ micr., labelled "Limnobates strigosa Sk., N. S. W. (Botany) (AMS: K39847).

*Other material*. **Australian Capital Territory**: 1♀ macr., Canberra, Cook, 35.18S 149.08E, 26.ii.1984, M.S. Harvey (ANIC). **New South Wales**: 1♀ macr., Peacock Creek, 28.44S 152.37E, 5.vii.1997, Eren Turak (AMS); 1♂, 1♀ macr., Boonoo Boonoo River at Falls EPA Survey - MRHI CLAR 04, 28.48S 152.10E, 18.iv.1996, Joanne Ling (AMS); 1♀ micr., Corall's Creek at Bald Rock N.P. EPA Survey - MRHI CLAR 06, 28.51S 152.06E, 16.iv.1996, Scott Carter (AMS); 1♀ micr., Clarence River at Carnham Crossing EPA Survey - MRHI CLAR 17, 29.20S 152.32E, 9.x.1995, E. Turak (ANIC); 1♂ micr., Chandlers Creek, Morera SF EPA Survey - MRHI CLAR 09, 29.55S 152.31E, 19.iv.1996, Joanne Ling (AMS); 1♂ macr., Corindi River, Boyles Bridge EPA Survey - MRHI BELL 502, 30.02S 153.05E, 12.v.1997, Natacha Waddell (AMS); 3♀ macr., Bourke & Wilcannia, Darling River floods, 30.05S 145.56E, v.1890, Helms (AMS); 1♂ macr., Blicks River at Glen Fernaigh EPA Survey - MRHI Clar 841, 30.13S 152.30E, 11.v.1997, Eren Turak (AMS); 1♀ macr., Mt. Kaputar, 30.16S 150.10E, 5.ix.1962, C.W. Frazier (ANIC); 1♂ macr., Bellinger River at Gordonville Xing EPA Survey - MRHI BELL 04, 30.25S 152.51E, 16.iv.1997, Eren Turak (AMS); 1♀ macr., Commissioners Waters [as Water], 30.29S 151.42E, 19.ii.1966, E.F. Riek (ANIC); 1♂ micr., Bakers Creek, on Grafton Road, 30.31S 151.54E, vii.1970, C.W. Frazier (ANIC); 1♂ macr., Forbes River, off Racecourse Trail EPA Survey - MRHI HAST 18, 31.08S 152.21E, 9.iv.1995, E. Turak (ANIC); 1♀ macr., Wilson River at Wild Bull Park EPA Survey - MRHI HAST 22, 31.15S 152.31E, 5.x.1995, E. Turak (ANIC); 1♂, 1♀ macr., Wilson River at Wild Bull Park EPA Survey - MRHI HAST 22, 31.15S 152.31E, 7.iv.1995, Joanne King (AMS); 1♀ macr., Forbes River, Round Flat EPA Survey - MRHI HAST 10, 31.20S 152.20E, 18.iv.1996, Joanne King (AMS); 1♂, 2♀ macr., Tobins River u/s Mt Seaview Lodge EPA Survey - MRHI HAST 14, 31.24S 152.15E, 6.x.1995, E. Turak (ANIC); 1♂ micr., Ellenborough River u/s Ellenborough EPA Survey - MRHI HAST 08, 31.28S 152.28E, 6.x.1995, E. Turak (ANIC); 1♂ macr., Wauchope, stagnant pools off running creek, 31.28S 152.44E, 12.viii.1958, T.E. Woodward (ANIC); 1♂ macr., Tommy Owen's Creek, Brimbin Reserve EPA Survey - MRHI MANN 07, 31.49S 152.26E, 11.x.1995, N. Waddell (ANIC); 1♀ macr., Koorainghat Creek, Gilfillans Road, EPA Survey - MRHI MANN 01, 31.59S 152.31E, 5.iv.1995, E. Turak (ANIC); 4♂, 1♀ macr., Goonoo State Forest, 5miles S of Mendooran, mv light, 32.03S 148.55E, 23.iii.1971, D.K. McAlpine (AMS); 2♀ micr., 30 km N of Singleton, Tuglo Wildlife Ref., CL005, dam, 32.11S 151.20E, 11.iii.1979, I. Lansbury (ANIC); 1♀ micr., Bayswater Creek EPA Survey - MRHI HUNT m5, 32.27S 151.02E, 17.x.1995, N. Waddell (ANIC); 1♀ macr., Williams River d/s Clarencetown EPA Survey - MRHI HUNT 504, 32.47S 151.32E, 18.iv.1997, Alexander Leask (AMS); 1♂, 2♀ macr., Lachlan River d/s Kiacatoo Bridge, EPA Survey - MHRI LACH 17, 33.03S 146.46E, 29.x.1994, R. Cowell (ANIC); 1♂ macr., Lachlan River, Murrin Bridge, EPA Survey - MRHI LACH

18, 33.12S 146.22E, 27.iii.1995, E. Turak (ANIC); 1♂, 1♀ macr., Point Clave near Gosford, 33.25S 151.21E, 16.ii.1958, M.I. Nikitin (AMS); 1♀ macr., Lake Cowal, 33.42S 147.21E, 29.ix.1971, W. Vestjens (ANIC); 2♂ macr., Megalong Creek at Narrow Neck EPA Survey - MRHI HAWK 10, 33.44S 150.14E, 28.v.1997, Natacha Waddell (AMS); 1♂ macr., Megalong Creek at Narrow Neck EPA Survey - MRHI HAWK 10, 33.44S 150.14E, 1.xi.1995, J. King (AMS); 1♀ micr., Nepean River d/s Penrith BMG causeway EPA Survey - MRHI HAWK m1, 33.44S 150.41E, 31.x.1995, Joanne Ling (AMS); 1♀ micr., Gordon, 33.45S 151.09E, 3.ix.1936, D.F. Waterhouse (ANIC); 1♀ macr., Lindfield, in pool, 33.47S 151.10E, 13.vi.1982, M. Stevens (ANIC); 2♀ macr., Canley Vale, 33.53S 150.56E, 8.i.1958, M.I. Nikitin (JTPC); 1♀ macr., Orphan School Creek EPA Survey - MRHI GEOR 525, 33.53S 150.57E, 17.vi.1997, Alexander Leask (AMS); 1♀ macr., Bondi, 33.53S 151.16E, 15.xi.1934, K.K. Spence (AMS); 1♀ macr., National Park, 34.04S 151.04E, 7.xi.1956, J.W. Evans (AMS); 1♂ macr., N.S.W. National Park, 34.04S 151.04E, 30.i.1966, D.K. McAlpine (AMS); 1♂ macr., N.S.W. National Park (Royal Nat. Pk), Waterfall, 34.08S 151.04E, 14.ii.1926, Mackerras (ANIC); 1♂, 1♀ micr., 1♂, 1♀ macr., Royal National Park, Upper Causeway, CL1405, 34.09S 151.02E, 20.xii.1977, J.T. & M.S. Polhemus (JTPC); 1♀ macr., Abercrombie River, Speary Ridge EPA Survey - MRHI LACH 01, 34.10S 149.56E, 22.iii.1996, A. McLean (ANIC); 1m 3♀ macr., Gum Creek, 16 km W by S of Darlington Point, still water pools with vegetation, in creek bed, 34.36S 145.49E, 25.xi.1993, T. Weir & W. Dressler (ANIC); 2♂, 2♀ macr., 1♂ micr., 3 nymphs, 2 km S Balranald, still waters pools with vegetation, 34.39S 143.34E, 25.xi.1993, T. Weir & W. Dressler (ANIC); 1♀ macr., Coleambally Canal, 25 km SW by W Leeton, edge of slow flowing canal, 34.40S 146.10E, 25.xi.1993, T. Weir & W. Dressler (ANIC); 2♂, 1♀ macr., 2♂, 6♀ micr., 1 nymph, Yanga Creek, 7 km SE by S of Balranald, still muddy water, river overflow with vegetation, 34.42S 143.35E, 25.xi.1993, T. Weir & W. Dressler (ANIC); 1♂ macr., 18 km SSE Narrandera, temporary roadside pool with grasses, 34.54S 146.37E, 26.xi.1993, T. Weir & W. Dressler (ANIC); 1♀ macr., Houlaghans Creek, 10 miles [= 15 km] N of Wagga Wagga, 34.58S 147.22E, 20.i.1967, B. Cantrell (UQIC); 1♀ macr., 1♀ micr., Lower Parma Creek at Falls Picnic area EPA Survey - MRHI CLYD 702, 34.58S 150.36E, 6.vi.1997, Eren Turak (AMS); 1♂ micr., Yerriyong Creek u/s conf. Parma Creek EPA Survey - MRHI CLYD 701, 34.58S 150.36E, 6.vi.1997, E. Turak (AMS); 1♂, 2♀ macr., 10mi [= 15 km] W Wagga Wagga, temporary pool, 35.07S 147.11E, 3.iii.1969, G.B. Monteith (UQIC); 1♀ macr., Porter's Creek Dam EPA Survey - MRHI CLYD m1, 35.16S 150.20E, 3.iii.1996, J. Ling (ANIC); 2♂ macr., Yadboro River EPA Survey - MRHI CLYD 14, 35.19S 150.11E, 3.iii.1996, E. Turak (ANIC); 1♂ macr., Yadboro, 35.20S 150.14E, 2.xi.1994, L. Hill (ANIC); 1♀ macr., Millars Creek, Ulladulla, u/s Weir EPA Survey - MRHI CLYD 501, 35.21S 150.28E, 26.iii.1997, Natacha Waddell (AMS); 1♂ macr., Clyde River, Blue Gum Flat EPA Survey - MRHI CLYD 04, 35.23S 150.12E, 24.x.1995, A. Leask (ANIC); 1♂ macr., Bawley Point, 35.30S 150.24E, 28.i.1993, D. Rentz & K. McCarron (ANIC); 1♀ macr., Bawley Point, 35.30S 150.24E, 18.iii.2000, D.C.F. Rentz & O. Schmidt (ANIC); 1♀ macr., Buckenbowra River EPA Survey - MRHI CLYD 20, 35.38S 149.59E, 5.iii.1996, Eren Turak (AMS); 1♂ macr., Buckenbowra River EPA Survey - MRHI CLYD 20, 35.38S 149.59E, 26.iii.1997, Natacha Waddell (AMS); 1♂ micr., Billabong Creek, Culcairn Bridge EPA Survey - MRHI MURR 19, 35.40S 147.02E, 27.iii.1995, E. Turak (AMS); 1♂ macr., Murray River, Howlong Common EPA Survey - MRHI MURR 09, 36.00S 146.37E, 9.xi.1995, J. Ling (AMS); 1♂, 1♀ micr., Kara Creek, 13 km NE by E of Jindabyne, 940 m, 36.21S 148.44E, 16.iii.1979, T.A. Weir (ANIC); 1♂, 1♀ macr., 2♂, 2♀ micr., Kara Creek, 13 km NE by E of Jindabyne, 940 m, CL019, 36.21S 148.44E, 16.iii.1979, I. Lansbury (ANIC); 1♀ macr., 1♂ micr., Murrumbidgee River EPA Survey - MRHI BEGA 25, 36.33S 149.59E, 4.vi.1998, Eren Turak (AMS); 2♂ macr., Polack's Flat Creek EPA Survey - MRHI Bega 07, 36.38S 149.36E,

12.iii.1996, Natacha Waddell (AMS); 1♂ macr., Tin Mine Creek, Cowombat Flat EPA Survey - MRHI MURR 27, 36.42S 148.05E, 2.v.1996, Eren Turak (AMS); 1♀ macr., Cascades via Dorrigo, 11.iv.1966, H. Burton (UQIC). **Norfolk Island:** 1♂ micr., Douglas Drive, ponds beside road, 29.02S 167.56E, 1.xii.1984, T.A. Weir (ANIC); 3♂, 1♀ micr., swamp, west side, CL1428, 29.02S 167.56E, 29.xii.1977, J.T. & M.S. Polhemus (JTTC); 2♂, 2♀ micr., Burnt Pine, 29.02S 167.57E, 7.xi.1967, G. Kuschel (ANIC, ZMUC); 4♀ micr., Broken Bridge, Cascade Creek, 29.02S 167.58E, 2.iv.1984, D.C.F. Rentz (ANIC); 2♂, 4♀ micr., 1 nymph, Cascade, S.P., CL1422, 29.02S 167.58E, 27.xii.1977, J.T. & M.S. Polhemus (JTTC); 10♂, 4♀ micr., Gaol, S.P., CL1423, 29.03S 167.58E, 28.xii.1977, J.T. & M.S. Polhemus (JTTC). **Northern Territory:** 1♀ macr., Keep River Gorge, Keep River Nat Pk, deep billabong with rocks and floating leaves, etc, 15.50S 129.07E, 22.vii.1994, T. Weir & A. Roach (ANIC); 1♀ macr., 20.5 km N by E Bullita, Gregory NP, shallow pools in flowing creek, muddy bottom. vegetation, 15.56S 130.28E, 23.v.2001, T. Weir & P. Bouchard (ANIC); 2♂, 1♀ macr., 1♂, 2♀ micr., Cockatoo Lagoon, Keep River NP, deep billabong with waterlilies and fringing grass, 15.59S 129.02E, 23.vii.1994, T. Weir & A. Roach (ANIC); 1♂ macr., Station Creek, 1 km NNE Bullita, Gregory NP, small billabong in flowing creek, 16.07S 130.25E, 21.v.2001, T. Weir & P. Bouchard (ANIC); 1♀ macr., Station Creek, 1 km NNE Bullita, Gregory NP, shallow flowing water, rocks, leaves, algae, 16.07S 130.25E, 21.v.2001, T. Weir & P. Bouchard (ANIC); 1♀ macr., 1♂ micr., Redbank Gorge, West Macdonnells NP, large pool, sandy creek bed, overhanging and floating vegetation, 23.34S 132.31E, 9.iii.1995, T. Weir (ANIC); 1♀ macr., 1 nymph, Ormiston Creek, below Gorge, West Macdonnells NP, still pools in sandy creek bed with rocks, lots of algal growth, reeds, 23.38S 132.44E, 10.iii.1995, T. Weir (ANIC); 1♀ macr., Wigley Waterhole, 8 km W of Alice Springs, 23.38S 133.51E, 4.xi.1974, T. Weir & T. Angeles (ANIC); 1♀ macr., Simpsons Gap, West Macdonnells NP, large pools in flowing creek (temporary) with grass at edge, 23.40S 133.43E, 6.iii.1995, T. Weir (ANIC); 2♀ micr., Finke River above Glen Helen, West Macdonnells NP, flowing river, rocky bottom, algal growth, bulrushes & grass, 23.41S 132.40E, 10.iii.1995, T. Weir (ANIC); 1♀ micr., mound springs above Pioneer Creek, West Macdonnells NP, permanent mound spring, bulrushes, mossy growth, 23.41S 132.43E, 8.iii.1995, T. Weir (ANIC); 2♂, 1♀ micr., Finke River at Glen Helen Gorge, West Macdonnells NP, flowing river, large pools, with bulrushes, sandy bottom, algal growth, 23.41S 132.44E, 10.iii.1995, T. Weir (ANIC); 1♂, 1♀ micr., Serpentine Gorge, West Macdonnells NP, permanent rocky pools, sandy bottom, overhanging and floating vegetation, 23.44S 132.59E, 8.iii.1995, T. Weir (ANIC); 1♀ macr., 1♀ micr., 1 nymph, Hugh R. 2.5 km SE by S Paisley Bluff, flowing river, pools, overhanging vegetation, rocky & sandy bottom, 23.44S 133.21E, 7.iii.1995, T. Weir (ANIC); 1♂ micr., Ellery Creek Big Hole, West Macdonnells NP, large pool, vegetation at edge, 23.47S 133.04E, 7.iii.1995, T. Weir (ANIC); 1♂, 2♀ micr., Ellery Gorge, near Alice Springs, CL1417, 23.xii.1977, J.T. & M.S. Polhemus (JTTC); 1♀ micr., Hugh R. 12.5 km SSE Paisley Bluff, flowing river, deep pools, grass at edges, sandy bottom, 23.49S 133.22E, 7.iii.1995, T. Weir (ANIC); 1♀ macr., 5♂, 9♀ micr., 2 nymphs, Finke Gorge NP, Palm Valley, large pools, rocky creek bed, algal growth, grass at edge, bulrushes, 24.03S 132.43E, 14.iii.1995, T. Weir (ANIC); 1♂, 1♀ macr., 3♂, 4♀ micr., Finke Gorge NP, Kanara Ck at the Oasis, permanent rock pools, palms, grass at edge, algal growth, 24.04S 132.44E, 12.iii.1995, T. Weir (ANIC); 1♀ macr., Palm Valley, Finke Gorge Nat. Pk, 24.04S 132.45E, 10.vii.1974, T. Weir & T. Angeles (ANIC); 1♂ macr., Finke Gorge NP, above old Ranger Station, temporary rocky pools, grass at edge, algal growth, 24.04S 132.46E, 12.iii.1995, T. Weir (ANIC); 1♂, 2♀ macr., 6♂, 7♀ micr., 1 nymph, Finke Gorge NP, Finke River at Palm Bend, large shallow pool in sandy & rocky river bed, grass at edge, algal growth, 24.04S 132.46E, 12.iii.1995, T. Weir (ANIC); 1♂, 3♀ macr., Finke Gorge NP, Little Palm Creek, rock pools, palms, algal growth,



overhanging vegetation, 24.06S 132.46E, 13.iii.1995, T. Weir (ANIC); 2♀ macr., 1♂, 3♀ micr., 4 nymphs, Finke Gorge NP, Boggy Hole, large permanent pool in river bed, grass & bulrushes at edge, algal growth, 24.09S 132.52E, 15.iii.1995, T. Weir (ANIC); 1♀ macr., 1♂ micr., Finke Gorge NP, Finke River, permanent pool in river bed, grass at edge, bulrushes, algal growth, 24.09S 132.52E, 15.iii.1995, T. Weir (ANIC); 1♂ macr., 1♂, 2♀ micr., Finke River at Running Water, temporary pools in sandy creek bed, 24.20S 132.53E, 15.iii.1995, T. Weir (ANIC). **Queensland:** 2♀ macr., Stewart River, S of Coen, CL1747, 14.07S 143.32E, 22.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♀ macr., Morehead River (as Moorehead), water sweep, 15.01S 143.39E, 29.vii.1992, P. Zborowski & E.S. Nielsen (ANIC); 1♀, Mitchell River, Gulf of Carpentaria, fast flowing, bright sunlight, 15.28S 141.45E, 22.v.1979, I. Lansbury (ILC); 1♀ macr., 2♂ micr., Annan River, CL1737, 15.41S 145.12E, 19.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♂ macr., Palmer River, 16.06S 144.46E, 14.vi.1971, E.F. Riek (ANIC); 1♀ macr., 1♂, 1♀ micr., Cooper Creek estuary nr Cape Tribulation, CL1734, beach pond, 16.11S 145.26E, 17.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♀ macr., Hutchinsons Creek, Cape Tribulation Road, CL1733, 16.13S 145.24E, 17.viii.1983, J.T. & D.A. Polhemus (JTPC); 6♂, 4♀ macr., McLeod River near Mt Carbine, CL1736, 16.30S 145.00E, 20.viii.1983, J.T. & D.A. Polhemus (JTPC); 2♀ macr., Julatten, CL0139, creek in deep gully, 16.36S 145.20E, 20.v.1979, I. Lansbury (ANIC); 1♀ macr., Julatten, CLO138, rainforest creek, 16.36S 145.20E, 21.v.1979, I. Lansbury (ANIC); 1♀ macr., Little Mitchell River, CL0143, 16.44S 145.21E, 22.v.1979, I. Lansbury (ANIC); 2♂ macr., Carr Creek, 18 km from Mareeba CL0142, 16.50S 145.23E, 22.v.1979, I. Lansbury (ANIC); 1♂ macr., Cairns, 16.55S 145.56E, i.1951, J.G. Brooks (AMS); 1♀ macr., Cairns, 16.55S 145.56E, 25.viii.1952, J.R. Pollock (UQIC); 2♂ macr., Davies Creek NP, CL1729, 16.57S 145.32E, 16.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♂ micr., Tinaroo Creek, 17.03S 145.28E, 1.viii.1992, E. Nielsen & A. Gillison (ANIC); 3♂, 4♀ macr., 2♂ micr., Tinaroo Falls Dam inlet, just below Lookout Point, CL0146, 17.11S 145.33E, 25.v.1979, I. Lansbury (ANIC); 1♀ macr., Peterson Ck, 12 km from Atherton on Yungaburra Road, CL0148, 17.17S 145.35E, 24.v.1979, I. Lansbury (ANIC); 2♂ micr., Millaa Millaa Falls ca 2000 ft [= 650 m], 17.30S 145.37E, 10.xi.1969, T. Weir (ANIC); 1♂ micr., Millstream Falls Nat. Pk, pools below falls, clear, vegetation, full sun, 17.39S 145.27E, 8.xi.1998, T. Weir (ANIC); 1♀ macr., 40 km W of Tully, 17.56S 145.33E, 31.v.1971, E.F. Riek (ANIC); 15♂, 5♀ macr., 6 km E of Murray Falls, CL1719, 18.09S 145.52E, 13.viii.1983, J.T. & D.A. Polhemus (JTPC); 2♂ micr., Murrays Spring, 8 km W by N Musselbrook Mining Camp, large pool in rocky creek bed, sandy bottom, water lillies, Pandanus, algal growth, 18.35S 138.03E, 9.v.1995, T. Weir (ANIC); 1♂, 3♀ macr., Jourama Falls Nat. Pk, CL1716, 18.52S 146.07E, 13.viii.1983, J.T. & D.A. Polhemus (JTPC); 1♂, 2♀ macr., Townsville, Institute of Marine Science, CL0152, rocky creek, 19.11S 146.46E, 30.v.1979, I. Lansbury (ANIC); 1♀ macr., Townsville, 19.16S 146.49E, 10.x.1903, F.P. Dodd (AMS); 2♂ macr., Alligator Creek, Bowling Green Nat. Pk, shallow flowing creek, rocky & sandy bottom, vegetation, large pools, 19.26S 146.57E, 20.v.1999, T. Weir (ANIC); 2♂, 1♀ macr., 1♂ micr., 4 nymphs, White Mountains NP, "Foot Paddock Dam", still pools, murky, sedges, vegetation, rocky base, logs, algae, full sun, 20.27S 144.49E, 5.iv.2000, T. Weir (ANIC); 1 nymph, White Mountains NP, RGSQ/AG Base Camp, camp dam, murky, rocky, silty base, vegetation, logs, sticks, full sun, 20.27S 144.50E, 30.iii.2000, T. Weir (ANIC); 1♀ macr., Bucasia, 21.02S 149.10E, 28.xii.1994, Ken J. Sandery (ANIC); 1♀ macr., 2♂ micr., Eungella Nat. Pk, via Dalrymple Heights, 21.11S 148.29E, 4.xi.1969, T. Weir (ANIC); 1♂ macr., Eungella Nat. Pk, via Dalrymple Heights, 21.11S 148.29E, 4.viii.1968, T. Weir (UQIC); 1♂ macr., 0.6 km SE of Blue Mt., rainforest pitfalls, 21.36S 148.58E, 23.iii.2000, G. Monteith & D. Cook (QMB); 2♀ macr., Georgina River at Urandangie, DNRQ SITE 0012010, 21.37S 138.19E, 3.xi.1998, DNRQ (DNRQ); 1♂ macr., Pine Mt., summit,

pitfalls, hoop pine scrub, 21.45S 148.50E, 24.iii.2000, Monteith & Cook (ANIC); 1♂ macr., Mistake Creek at Charlton, DNRQ SITE 120306A, 22.30S 147.06E, 21.v.1998, DNRQ (DNRQ); 1♂ micr., Clermont, 22.50S 147.38E, .x.1929, K.K. Spence (AMS); 1♂, Crinum Creek at Lilyvale Lagoon, DNRQ SITE 130215A, 23.07S 148.20E, 19.x.1994, DNRQ (DNRQ); 1♂ micr., Hedlow Creek, 17 km W Rockhampton, 23.13S 150.37E, 27.iv.1969, T. Weir (UQIC); 1♂ micr., Emu Park, freshwater lagoon, 23.16S 150.50E, 27.iv.1969, T. Weir (UQIC); 1♂ micr., Limestone Creek, 10 mi [= 15 km] W Rockhampton, 23.17S 150.35E, 27.iv.1969, T. Weir (UQIC); 1♀ macr., Rockhampton, 23.22S 150.31E, 8.viii.1966, F.R. Wylie (UQIC); 1♂, 1♀ micr., 1 nymph, Washpool Creek via Rockhampton, 23.30S 149.29E, 15.vi.1969, T. Weir (UQIC); 1♀ macr., 10 miles [= 15 km] E of Jericho, 23.36S 146.16E, .v.1971, D. Hockings (UQIC); 5♂ macr., Blackdown Tableland via Dingo, 850-950m, 23.48S 149.08E, 11.iv.1996, G. Monteith (QMB); 2♂ macr., Dawson River at Capricorn Highway, 23.48S 149.46E, 5.iv.1969, T. Weir (UQIC); 1♀ macr., Wreck Rock, 16km S of Agnes Water, at light, 24.19S 151.58E, 9.xii.1986, D. Rugg & L. Sanchez (ANIC); 1♀ macr., Glassford Creek, Monto-Many Peaks Rd (as Gladford Creek), 24.35S 151.20E, 18.xi.1957, T.E. Woodward (UQIC); 1♀ macr., 1♂, 2♀ micr., Carnarvon, 24.49S 147.45E, 29.v.1954, T.E. Woodward (UQIC); 7♂, 1♀ macr., Dargonelly Rockhole, Mt Moffatt NP, 25.02S 147.54E, 27.ii.1996, G. Monteith & C. Burwell (QMB); 1♀ macr., Carnarvon Gorge, 25.03S 148.12E, 29.v.1954, T.E. Woodward (UQIC); 1♂, 1♀ macr., 2♂, 2♀ micr., Boggomoss No 19 via Taroom aquatic coll 075, 25.25S 150.01E, 11.xi.1996, G. Thompson (ANIC); 1♂ macr., Boggomoss No 3 via Taroom aquatic coll 079, 25.26S 150.01E, 12.xi.1996, G. Thompson (QMB); 1♀ micr., Boggomoss No 8 via Taroom, at light 040, 25.27S 150.02E, 12.xi.1996, G. B. Monteith (QMB); 1♂, 1♀ micr., Boggomoss Taroom District No 6 coll 098, pitfalls in field, 25.27S 150.02E, 10.ix.1996, P. Lawless (QMB); 1♂, 1♀ micr., Boggomoss No 21 via Taroom night hand coll 027, 25.27S 150.03E, 10.xi.1996, Qld Mus survey (QMB); 1♂ macr., 1♂ micr., Boggomoss 12/1 (Nathan G) via Taroom aquatic coll 081, 25.27S 150.08E, 14.xi.1996, G. Thompson (QMB); 2♀ macr., Boggomoss 12/1 (NathanG) via Taroom dung trap 080, 25.27S 150.08E, 13.xi.1996, G. B. Monteith (QMB); 1♀ micr. [QM Berlesate No 917], Nathan Gorge, Fern 1, leaf litter, river margin, 25.27S 150.08E, 14.xi.1996, G.B. Monteith (QMB); 1♂ micr., Boggomoss 12/2 (Nathan G) via Taroom aquatic coll 084, 25.27S 150.09E, 14.xi.1996, G. Thompson (QMB); 4♂, 5♀ macr., Fraser Island, 2nd creek SE, 25.30S 153.03E, 20.v.1971, D.L. Hancock (UQIC); 1♀ macr., Fraser Island, 5th Creek SE, 25.30S 153.03E, 18.v.1971, D.L. Hancock (UQIC); 1♂ micr., Boggomoss No 10 via Taroom aquatic coll 089, 25.31S 150.03E, 14.xi.1996, G. Thompson (ANIC); 1♀, Burnett River at Mount Lawless, DNRQ SITE 136002D, 25.32S 151.39E, 18.x.1994, DNRQ (DNRQ); 1♂ macr., Hell Hole Gorge Nat. Pk, Powell Creek, large pool beside dry creek bed, vegetation in water, 25.34S 144.11E, 22.x.1997, T. Weir (ANIC); 1♂ macr., Dawson River at Taroom, DNRQ SITE 130302A, 25.38S 149.47E, 20.viii.1998, DNRQ (DNRQ); 1♂ macr., Warrego River at Augathella, DNRQ SITE 423204A, 25.48S 146.35E, 10.xi.1998, DNRQ (DNRQ); 1♂ macr., 1♂ micr., Imbil State Forest, 26.28S 152.41E, 5.xi.1957, T.E. Woodward (UQIC); 1♂, 1♀ macr., Wallal Bore, via Charleville, 26.34S 146.13E, 21.ii.1970, B.H. Kay (ANIC); 3♂, 1♀ macr., Beerwah, 26.51S 152.57E, 22.ix.1956, T.E. Woodward (UQIC); 2♀ micr., Somerset Dam, 27.04S 152.35E, 26.viii.1952, M.W. (UQIC); 1♀ micr., Dalby, 27.11S 151.15E, .xii.1933, N. Geary (JTTC); \*1♂ macr., Pine River, 27.17S 153.03E, 23.vi.1962, G. Monteith (UQIC); 1♂, 1♀ macr., South Pine River via Samford, 27.22S 152.22E, 16.ii.1969, T. Weir (UQIC); 2♂, 3♀ macr., Cedar Creek at Samford, near Brisbane, CL1057, 27.22S 152.53E, 7.vi.1979, I. Lansbury (ANIC); 4♀ macr., Ashgrove, Brisbane, Walton Bridge, 27.27S 152.59E, 3.v.1960, T.E. Woodward (UQIC); 1♂ macr., Brisbane, 27.28S 153.02E, 12.iv.1945, Oxenham (UQIC); 1♂ macr., Brisbane, 27.28S 153.02E, 10.viii.1945, R. Moller (UQIC); 1♂ micr., Brisbane, 27.28S

153.02E, 9.viii.1954, N.D. Young (UQIC); 2♀ macr., Brisbane, 27.28S 153.02E, 12.viii.1911, H. Hacker (QMB); 1♂ macr., 1 nymph, Brisbane, 27.28S 153.02E, 15.i.1912, H. Hacker (QMB); 1♀ micr., Brisbane, 27.28S 153.02E, 21.iii.1949, G. McCarty (UQIC); 1♂ macr., Brisbane, 27.28S 153.02E, 28.iii.1946, C. Clark (UQIC); 1♂ macr., Brisbane, 27.28S 153.02E, 10.x.1956, J.H. Barrett (UQIC); 1♀ macr., Brisbane, 27.28S 153.02E, 17.iv.1956, H.J. Lavery (UQIC); 1♂ macr., Brisbane, 27.28S 153.02E, 30.v.1962, F.J.D. McDonald (UQIC); 1♂, 2♀ macr., Cedar Falls, Brisbane area, CL0158, 27.28S 153.02E, 7.vi.1979, I. Lansbury (ANIC); 1♀ macr., Indooroopilly, Brisbane, 27.30S 152.58E, 8.x.1959, M. Hamon (UQIC); 1♂ macr., St Lucia, Brisbane, 27.30S 153.00E, 1.vi.1981, T. Johnson (UQIC); 1♂ macr., Dunwich, North Stradbroke Island, 27.30S 153.24E, 15.iv.1967, B. Cantrell (UQIC); 1♂ micr., Dunwich, North Stradbroke Island, 27.30S 153.24E, .xii.1954, J.K. Leslie (UQIC); 1♀ micr., Dunwich, North Stradbroke Island, 27.30S 153.24E, 15.iv.1960, P.R. Webb (UQIC); 1♂ micr., Lawes, 27.34S 152.20E, 26.xii.1951, Prasad (UQIC); 1♀ macr. 2m 1♀ micr., Moggill Farm, Brisbane, CL0155, roadside pool, 27.34S 152.53E, 6.vi.1979, I. Lansbury (ANIC); 1♂ macr., Moggill, Brisbane, 27.34S 152.53E, 4.iv.1972, B. Cantrell (UQIC); 1♀ macr., 1♂ micr., Moggill, Brisbane, 27.34S 152.53E, 1.x.1955, T.E. Woodward (UQIC); 1♀ macr., Moggill, Brisbane, 27.34S 152.53E, 6.vi.1963, B.V. Timms (UQIC); 1♀ macr., Acacia Ridge, Brisbane, 27.35S 153.01E, .i.1962, E.C. Dahms (QMB); 1♂ macr., Sunnybank, 27.35S 153.03E, 13.viii.1947, S. Cossins (UQIC); 1♂ micr., Ipswich, 27.37S 152.47E, 17.vii.1950, W. Mungomery (UQIC); 1♀ micr., Greenbank, 27.43S 152.59E, 13.xii.1962, G.B. Monteith (UQIC); 1♂ macr., Jerrys Downfall, Park Ridge, 27.43S 153.02E, 15.vi.1966, B.F. Ingram (UQIC); 1♀ macr., Tamborine [as Tambourine], 27.53S 153.08E, 19.viii.1959, K. Korboot (UQIC); 1♂ macr., Mt Tamborine, 27.55S 153.10E, 3.iii.1962, B. Willson (UQIC); 1♀ micr., Beaudesert, 27.59S 153.00E, 4.ii.1956, Kirkpatrick (UQIC); 1♂ macr., Beaudesert, 27.59S 153.00E, 4.xii.1953, R.E. Harrison (UQIC); 1♀ micr., Glengallon Creek, DNRQ SITE 422317B, rock pool, 28.08S 151.55E, 4.xi.1998, DNRQ (DNRQ); 1♂ macr., Croftby, 28.09S 152.34E, 7.xii.1946, P. Bertie (UQIC); 3♂, 1♀ micr., South Emu Creek, via Emu Vale, 28.13S 152.25E, 22.v.1969, T. Weir (UQIC); 1♀ macr., Logan River at Rathdowney, DNRQ SITE 145020A, 28.13S 152.52E, 3.xi.1998, DNRQ (DNRQ); 1♀ micr., Rathdowney, 28.13S 152.52E, 12.iii.1966, E. Mann (UQIC); 1♂ macr., 3♂, 5♀ micr., Farm Creek, 15 mi [= 24 km] E of Emu Vale, 3000 ft [= 1000 m], 28.16S 152.19E, 17.v.1969, T. Weir (UQIC); 5♂, 5♀ macr., Macintyre Brook at Inglewood, DNRQ SITE 4164054, 28.26S 151.06E, 3.vi.1999, DNRQ (DNRQ); 2♀ macr., 5 miles [= 7 km] W of Tickalara [as Tickalarra], 28.37S 142.08E, 14.xi.1949, E.F. Riek (ANIC); 1♀, Sundown NP, near Stanthorpe, farm dam, 28.52S 151.40E, 6.iv.1985, I. Lansbury (ILC); 1♂ micr., Kirklee, 27.vii.1952, J. Davis (UQIC).

**South Australia:** 3♂, 1♀ micr., Coward Springs, Railway Bore, pitfalls, 29.24S 136.49E, 18.vii.1996, D. Niejalke (SAMA); 1♀ micr., Boopeeche Spring, 29.36S 137.24E, 15.xi.1995, H. Owens (SAMA); 1♂ macr., Moolooloo, Flinders Ranges, 30.59S 138.35E, 1921, H.M. Hale (SAMA); 1♂, 1♀ micr., Wilpena Pound, swamp, 31.34S 138.35E, 27.x.1955, E.T. Giles (SAMA); 1♂, 1♀ macr., 1♂ micr., 2 nymphs, Mambray Ck, Mt Remarkable Nat Pk, 32.51S 137.57E, 7.v.1981, J.A. Forrest (SAMA); 2♂, 1♀ macr., Burra Creek termination at Murray River, 34.02S 139.42E, 20.ii.1973, G.F. Gross (SAMA); 2♂, 1♀ micr., Ral Ral Ck, Calperum Stn, 15 km N by W Renmark, slow flowing creek, murky water, silty bottom, grassy edges, sticks, some floating vegetation, 34.03S 140.43E, 23.v.1996, T. Weir & K. Pullen (ANIC); 1♂ macr., 1♂ micr., Paringa Bridge, 3 km E by S Renmark, still water pond with vegetation, 34.11S 140.46E, 24.xi.1993, T. Weir & W. Dressler (ANIC); 1♀ macr., 3♂, 2♀ micr., 8 km W by N of Barmera, still water pond with vegetation, 34.15S 140.24E, 24.xi.1993, T. Weir & W. Dressler (ANIC); 1♂ macr., Murray Bridge, 35.07S 139.16E, H.M. Hale (SAMA); 1♀ micr., Myponga, 35.23S 138.28E, H.M. Hale (SAMA); 1♂, 1♀ micr., Kangaroo Island, river beyond Karatta

Kingscote Rd, CL0073, 35.59S 136.56E, 9.iv.1979, I. Lansbury (ANIC); 3♂, 6♀, Kangaroo Island, Grassdale, Southwest Rd between Western Hwy & Karatha, CL0071, 36.00S 136.52E, 9.iv.1979, I. Lansbury (ILC); 2♀ micr., Lucindale, 36.58S 140.22E, A.M. Lea (SAMA); 12, Mosquito Creek at Struan nr Naracoorte CL0084, 37.06S 140.47E, 23.iv.1979, I. Lansbury (ILC); 2♀ micr., Struan near Naracoorte, Mosquito Creek, CL0084, 37.06S 140.47E, 23.iv.1979, I. Lansbury (ANIC). **Tasmania:** many ♂♀, Beaconsfield, lagoon, 41.12S 146.49E, 25.xi.1993, collector unknown (ILC). **Victoria:** 1♀ micr., Eustace Gap Creek, locality RB, 36.38S 147.38E, 13.ii.1973, Dartmouth Survey (MV). 2♂, 1♀ macr., 8 km SW of Moyston, 37.21S 142.42E, 16.xi.1969, E.F. Riek (ANIC); 2♂ micr., Huntingdale, 37.55S 145.06E, 17.ix.1967, P. Kenins (MV); 1♀ micr., Macalister River - Thomson River Junct., Site T26, 38.02S 146.59E, 28.ix.1977, NMV Survey Dept. G.R.E.S. (NTMD); 1♀ micr., Macalister River - Thomson River Junct., Site T26, 38.02S 146.59E, 19.ii.1977, NMV Survey Dept. G.R.E.S. (NTMD); 1♂, 1♀, Anderson Railway Station, near Phillip Island, 38.32S 145.27E, 30.iii.1985, I. Lansbury (ILC). **Western Australia:** 1♀ micr., Millstream HS, 21.35S 117.04E, 5.iv.1971, E.F. Riek (ANIC); 3♂, 1♀, Swan River, 31.45S 116.04E, L.J. Newman (BMNH); 1♂, 3♀ micr., Bunbury, 33.20S 115.38E, A.M. Lea (SAMA); 6♀ micr., Bunbury, 33.20S 115.38E, date and collector unknown (SAMA); 1♂ micr., Capel River at Capel, CL890, 33.33S 115.33E, 5.xii.1977, J.T. Polhemus (JTPC); 1♂ micr., St Johns Brook, Vasse Highway, CL887, 33.49S 115.42E, 5.xii.1977, J.T. Polhemus (JTPC); 1♂, Brennan Bridge, Scott River, CALM SITE BLA14, 34.16S 115.16E, 20.xi.1997, CALM (CALM); 4♀ micr., 2 nymphs, Barlee Brook, CL890, 34.19S 115.42E, 8.xii.1977, J.T. Polhemus (JTPC); 2♀ macr., 1♂ micr., Stirling Ranges NP, headquarters, CL898, 34.23S 118.12E, 8.xii.1977, J.T. Polhemus (JTPC); 2♀ micr., Cosby Road, Frankland River, CALM SITE FRA07, 34.28S 116.54E, 12.x.1999, CALM (ANIC); 1♀ micr., Deep River near Walpole [as Walpoole], 35.00S 116.40E, 21.i.1952, E.P. Hodgkin (ANIC); 1♀, Torbay Drain, upstream of SCS603012, CALM SITE DEN18, 35.01S 117.38E 7.x.1999, CALM (CALM).

### *Hydrometra novaehollandiae* J. Polhemus & Lansbury, 1997

#### *Material examined*

**Holotype.** Micropterous ♂, labelled "AUST, NSW, Royal National Park, Upper Causeway, CL1405, XII-20-77, J.T. & M.S. Polhemus" and "HOLOTYPE, *Hydrometra novaehollandiae* Polhemus & Lansbury" (ANIC).

**Paratypes. New South Wales:** 1♂ micr., Kurrajong, CL1403, 33.33S 150.40E, 19.xii.1977, J.T. & M.S. Polhemus (JTPC).

**Other material. New South Wales:** 1 nymph, Woolli Woolli River EPA Survey - MRHI CLAR 28, 30.17S 153.10E, 8.v.1995, J. Ling (ANIC); 1 micr. [abdomen missing], Woolli Woolli River EPA Survey - MRHI CLAR 28, 30.17S 153.10E, 13.v.1997, Eren Turak (AMS); 1♂ micr., Eight Mile Creek, Blowhole EPA Survey - MRHI MACL 11, 31.05S 152.34E, 7.x.1995, N. Waddell (ANIC); 5♂, 3♀ micr., Wauchope, stagnant pools off running creek, 31.28S 152.44E, 12.viii.1958, T.E. Woodward (ANIC); 1♀ micr., Cowarra Creek, Houston Mitchell Drive EPA Survey - MRHI HAST 01, 31.32S 152.48E, 10.x.1995, J. King (ANIC); 1♀ micr., Cowarra Creek, Houston Mitchell Drive EPA Survey - MRHI HAST 01, 31.32S 152.48E, 5.iv.1995, F. Laurenson (ANIC); 1♂, 2♀ micr., Cowarra Creek, Houston Mitchell Drive EPA Survey - MRHI HAST 01, 31.32S 152.48E, 18.iv.1997, Eren Turak (AMS); 1♀ micr., Upper Little Cattai Creek EPA Survey - MRHI HAWK 02, 33.31S 150.59E, 1.vi.1995, E. Turak (AMS); 1♂ micr., Marramarra Creek EPA Survey - MRHI HAWK 01, 33.31S 151.04E,

7.iv.1995, E. Turak (AMS); 1♂ micr., Marramarra Creek EPA Survey - MRHI HAWK 01, 33.31S 151.04E, 1.xi.1995, J. Ling & E. Turak (AMS); 1♀ micr., Oxford Falls, 33.44S 151.14E, 5.x.1923, Nicholson (SAMA); 1♀ micr., Lapstone Creek EPA Survey - MRHI HAWK 516, 33.45S 150.39E, 12.vi.1997, Natacha Waddell (AMS); 1♂ micr., Epping, 33.46S 151.05E, 27.x.1923, Nicholson (SAMA); 1♀ micr., Audley, 34.05S 151.03E, 22.iv.1973, G. Hamer (AMS); 1♂ micr., Hacking River at Otford EPA Survey - MRHI HACK 501, 34.12S 151.00E, 4.vi.1997, Natacha Waddell (AMS); 1♂ micr., Lower Parma Creek at Falls Picnic area EPA Survey - MRHI CLYD 702, 34.58S 150.36E, 6.vi.1997, Eren Turak (AMS); 1♀ micr., Bunnair Creek at Calgaroo Ford EPA Survey - MRHI CLYD 18, 35.14S 150.24E, 13.iii.1995, Joanne King (AMS); 1♂, 1♀ micr., Bunnair Creek at Calgaroo Ford EPA Survey - MRHI CLYD 18, 35.14S 150.24E, 28.x.1997, Eren Turak (AMS); 1♂ micr., Bunnair Creek at Calgaroo Ford EPA Survey - MRHI CLYD 18, 35.14S 150.24E, 3.iii.1996, E. Turak (ANIC); 1♂ micr., Yadboro River EPA Survey - MRHI CLYD 14, 35.19S 150.11E 3.iii.1996, E. Turak (ANIC); 3♂ micr., Millars Creek, Ulladulla, u/s Weir EPA Survey - MRHI CLYD 501, 35.21S 150.28E, 26.iii.1997, Natacha Waddell (AMS); 1♀ micr., Clyde River, Blue Gum Flat EPA Survey - MRHI CLYD 04, 35.23S 150.12E, 13.iii.1995, E. Turak (ANIC); 1♂ micr., d/s Bimberamala River EPA Survey - MRHI CLYD 13, 35.26S 150.12E, 18.xi.1998, Joanne King (AMS); 2♀ micr., Cabbage Tree Creek, 34km SE Braidwood, shaded stream, wet sclerophyll forest, 35.35S 150.01E, 2.iv.1996, R.E. Roughley (ANIC); 2♂ micr., Monkey Gullt Creek, u/s Mogo EPA Survey - MRHI CLYD 503, 35.47S 150.09E, 16.iii.1997, Natacha Waddell (AMS); 2♂ micr., Kelly's Creek EPA Survey - MRHI CLYD m2, 35.49S 150.06E, 14.iii.1995, Joanne Ling (AMS); 1♀ micr., Mumbulla Creek EPA Survey - MRHI Bega m20, 36.33S 149.56E, 26.x.1995, Eren Turak (ANIC); 1♂ micr., Mumbulla Creek EPA Survey - MRHI Bega m20, 36.33S 149.56E, 7.iii.1996, Eren Turak (AMS); 1♂ micr., Wonboyn River EPA Survey - MRHI TOWA 02, 37.03S 149.48E, 17.iii.1995, Joanne Ling (AMS); 2♂, 1♀ micr., Wonboyn River EPA Survey - MRHI TOWA 02, 37.03S 149.48E, 26.x.1995, Natacha Waddell (AMS). **Queensland:** 1♂ micr., Searys Creek Rainforest via Tin Can Bay, 25.58S 153.04E, 17.x.1970, G.B. Monteith (UQIC); 1♂ micr., Tibrogargan Ck., 26.56S 152.58E, 5.vii.2000, DNRQ (ANIC); 1♂, 2♀ micr., Myora Creek, North Stradbroke Island, 27.29S 153.25E, 28.ii.1969, T. Weir (UQIC).

***Hydrometra darwiniana* J. Polhemus & Lansbury, 1997**

*Material examined*

*Holotype.* Macropterous ♂, labelled "12.31S 132.54E, 9 km N by E of Mudginberri H.S., N.T., 26.v.1973, T. Weir & N. Forrester" (ANIC).

*Paratypes.* **Northern Territory:** 1♂ macr., Birraduk Creek., 18 km E by N of Oenpelli, 12.16S 133.13E, 4.vi.1973, T. Weir & A. Allwood (ANIC); 1♂ macr., Cooper Creek, 15 km S by W of Nimbuhwah Rock, 12.20S 133.19E, 2.vi.1973, T. Weir & N. Forrester (ANIC); 1♀, Sorcery Rocks near Cannon Hill, Kakadu Nat. Pk, 12.23S 132.57E, 25.vi.1980, M.B. Malipatil (NTMD); 1♂ macr., Magela Ck, 1 km NNW of Mudginberry HS, 12.36S 132.52E, 25.v.1973, Upton & McInnes (ANIC); 1♀ macr., Darwin River, 16 km SW by S of Noonamah, 12.44S 130.58E, 16.v.1974, T. Angeles & W. Mollah (ANIC); 1♀ macr., same label data as holotype (ANIC); 1♂ macr., Jasper Gorge 54 km NW of Victoria River Downs, 16.02S 130.41E, 30.iv.1974, T. Weir & T. Angeles (ANIC). **Western Australia:** 1♂ macr., Ord River, 15.14S 128.14E, date and collector unknown (WAM); 1♀

macr. paratype, Lennard River Xing, Gibb River Road Kimberley, mv light, 17.23S 124.44E, 7.iv.1988, T.F. Houston (WAM); 1♂ macr., Pemberton [Locality suspect], 34.27S 116.02E 1.i.1961, J.L. Gressitt (BPBM).

**Other material. Northern Territory:** 1♂ macr., Birraduk Creek, 18 km E by N of Oenpelli, 12.16S 133.13E, 1.vi.1973, T. Weir & N. Forrester (ANIC); 1♂ macr., Birraduk Creek, 18 km E by N of Oenpelli, at light, 12.16S 133.13E, 4.vi.1973, R.L. Kitching (JTPC); 1♂ macr., Cooper Creek 15 km S by W of Nimbuwah Rock, 12.20S 133.19E, 2.vi.1973, T. Weir & N. Forrester (ANIC); 1♀ macr., Darwin, 12.27S 130.50E, 30.iii.1982, J.R. Hanley (NTMD); 1♂, 1♀ micr., Darwin, swamp, CL903, 12.27S 130.50E, 10.xii.1977, J.T. Polhemus (JTPC); 3♀ macr., South Alligator River at Arnhem Highway, CL919, 12.40S 132.30E, 16.xii.1977, J.T. Polhemus (JTPC); 1♀ micr., N of Adelaide River, 13.14S 131.06E, 12.xii.1977, J.T. Polhemus (JTPC); 1♂ macr., 4 km S by E Jarrnarm, Keep River NP, deep billabong with waterlilies and fringing grass, 15.48S 129.07E, 27.v.2001, T. Weir & P. Bouchard (ANIC); 1♂, 1♀ macr., Limestone Ck at Limestone Gorge, Gregory NP, flowing creek, pools, rocky limestone bottom, leaves, debris, 16.03S 130.23E, 22.v.2001, T. Weir & P. Bouchard (ANIC); 2♂ macr., Station Creek, 1 km NNE Bullita, Gregory NP, small billabong in flowing creek, 16.07S 130.25E, 21.v.2001, T. Weir & P. Bouchard (ANIC). **Queensland:** 1♀ macr., Iron Range, Cape York Peninsula, 12.44S 143.17E, 7.iv.1964, I.F.B. Common & M.S. Upton (ANIC); 1♂ micr., Dark Hole, Edward R., 14.46S 142.20E, 31.v.1994, B. Herbert & P. Graham (ANIC); 1♀ macr., Mossman Bluff Tr., 5-10 km W Mossman, 1300m, site 10, intercepts, rainforest, 16.28S 145.19E, 1.i.1989, Monteith, Thompson & ANZSES (QMB); 1♀ micr., Mornington Island Mission, 16.40S 139.10E, 7.v.1960, P. Aitken & N. Tindale (SAMA); 1♀ macr., Kuranda, 16.49S 145.38E, iii.1950, J.G. Brooks (AMS); 1♀ macr., Mutchilba, 17.08S 145.13E, ii.1933, A.D. Selby (MV); 1♀ macr., Normanton, 17.40S 141.04E, R. Kemp (SAMA); 1♂ macr., Normanton, at light, 17.40S 141.04E, 6.v.1963, P. Aitken & N.B. Tindale (SAMA); 1♀ macr., Normanton, at light, 17.40S 141.04E, 8.v.1963, P. Aitken & N.B. Tindale (SAMA); 1♂ macr., 8 km SE by E of Musselbrook Mining Camp, at light, 18.38S 138.11E, 11.v.1995, T. Weir (ANIC); 2♀ micr., White Mountains NP, "Foot Paddock Dam", still pools, murky, sedges, vegetation, rocky base, logs, algae, full sun, 20.27S 144.49E, 5 Apr, 2000, T. Weir (ANIC). **Western Australia:** 1♂ macr., Forrest River Mission, 14.35S 127.30E, iii.1956, K.J.C. (MV); 2♀ micr., K.R.S. Wyndham, 15.28S 128.06E, ii.1954, G. Bornemissra (SAMA).

### *Hydrometra orientalis* Lundblad, 1933

#### *Material examined*

**Other material. Northern Territory:** 1♀ macr., Melville Is, Palarumpi, Operation Raleigh 1986, mv light, 11.24S 130.25E, 30.vi.1986, P. Horner (NTMD); 5♀ macr., Cooper Creek, 19 km E by S of Mt Borradaile, 12.06S 133.04E, 5.vi.1973, T. Weir & T. Angeles (ANIC); 1♂, 1♀ macr., Birraduk Creek, 18 km E by N of Oenpelli, 12.16S 133.13E, 4.vi.1973, T. Weir & A. Allwood (ANIC); 1♂, 1♀ macr., Birraduk Creek, 18 km E by N of Oenpelli, 12.16S 133.13E, 1.vi.1973, T. Weir & N. Forrester (ANIC); 1♀ macr., Cooper Creek, 11 km S by W of Nimbuwah Rock, at light, 12.17S 133.20E, 3.vi.1973, R.L. Kitching (ANIC); 1♀ macr., 1 km N of Cahills Crossing (East Alligator River), at light, 12.25S 132.58E, 7.vi.1973, R.L. Kitching (ANIC); 1♀ macr., Darwin, 12.27S 130.50E, 12.v.1972, B.C. Abbey (ANIC); 1♀ macr., Darwin, 12.27S 130.50E, 30.iii.1982, J.R. Hanley (NTMD); 1♀ macr., Howard Springs, 12.27S 131.03E, 15.x.1980, M.B. Malipatil (NTMD); 1♀ macr., Howard Springs, at light, 12.27S 131.03E, 2.v.1982, J. Doyen (CAS); 2♀ macr., McMinns Lagoon, 16 miles [=

24 km] S of Darwin CL0111 - CL0124, 12.33S 131.04E, 4.v.1979, I. Lansbury (ANIC); 1♂, 2♀ macr., Berry Springs, 38 miles [= 57 km] S of Darwin, 12.42S 130.59E, 29.vii.1971, T. Weir & A. Allwood (ANIC); 1♀ macr., Arnhem Highway, Flying Fox Creek, CL0134, 12.42S 132.20E, 17.v.1979, I. Lansbury (ANIC); 1♀ macr., Darwin River, 16km SW by S of Noonamah, 12.44S 130.58E, 16.v.1974, T. Angeles & W. Mollah (ANIC); 1♂ macr., Magela Ck Arnhem Land, pools in flowing creek, sandy bottom, 12.45S 133.02E, 12.vii.1994, T. Weir & A. Roach (ANIC); 2♂, 1♀ macr., Nourlangie Creek, 8 km N of Mt. Cahill, 12.48S 132.42E, 21.v.1973, T. Weir & T. Angeles (ANIC); 1♂, 2♀ macr., Arnhem Highway, Wildman River, West branch, CL0131, CL0132, isolated pool, 12.50S 131.57E, 17.v.1979, I. Lansbury (ANIC); 1♀ macr., 16 km E by N of Mt. Cahill, 12.50S 132.51E, 13.vi.1973, R.L. Kitching (ANIC); 2♂, 4♀ macr., Koongarra Creek, nr Jabiru, Arnhem Land CL0113, 12.50S 132.51E, 8.v.1979, I. Lansbury (ANIC); 1♀ macr., 19 km E by N of Mt. Cahill, 12.50S 132.52E, 14.vi.1973, T. Weir (ANIC); 1♂ macr., Muirella Park, 12.51S 132.45E, 18.v.1987, Fay & Halfpapp (QDPIM); 1♂ macr., Koongarra near Jabiru, CL0114, borrow pit, 12.52S 132.51E, 9.v.1979, I. Lansbury (ANIC); 1♀ macr., Koongarra near Jabiru, CL0115, small pools, 12.52S 132.51E, 9.v.1979, I. Lansbury (ANIC); 18♂, 10♀ macr. 4 nymphs, 4 miles [= 6 km] SW of Finnis River Station HS, 12.53S 130.32E, 28.vii.1971, T. Weir & A. Allwood (ANIC); 2♀ macr., Arnhem Highway, lagoon off Mary River, CL0129, eucalyptus leaves, detritus, 12.54S 131.38E, 17.v.1979, I. Lansbury (ANIC); 1♀ macr., Lake Bennett area, 25 km SE Manton Dam, freshwater pool, 13.00S 131.17E, 29.xii.1979, M.B. Malipatil (NTMD); 1♀ macr., 1 km SE of Batchelor, 13.03S 131.03E, 12 Apr, 1966, N. McFarland (SAMA); 1♂, 1♀ macr., Giyamungkurr (Black Jungle Spring), Kakadu Nat. Pk, narrow deep billabong with fringing Pandanus & grass & water lillies, 13.03S 132.10E, 14.vii.1994, T. Weir & A. Roach (ANIC); 1♂ macr., Tjaynera Falls (Sandy Ck Falls), Litchfield Nat. Pk, flowing creek with shaded pools, 13.15S 130.47E, 17.vii.1994, T. Weir & A. Roach (ANIC); 1♂ 1♀ macr., Reynolds River xing, Litchfield NP, pools in flowing river with fringing Pandanus and grass, 13.18S 130.45E, 18.vii.1994, T. Weir & A. Roach (ANIC); 1♀ macr., U.D.P. Falls, mv light, 13.26S 132.25E, 18.vii.1980, M.B. Malipatil (NTMD); 1♂ macr., Fountain Head, freshwater pool, 13.28S 131.29E, 16 Apr, 1981, M. Malipatil & J. Hawkins (NTMD); 2♂ macr., Gimbat Station, 13.34S 132.36E, 7.viii.1986, P. Horner (NTMD); 3♂, 4♀ macr., Daly River, 13.46S 130.43E, no date, H. Wesselman (SAMA); 2♂ macr., Daly River, 13.46S 130.43E, date and collector unknown (SAMA); 1♂ macr., 7 km SW of Katherine, 14.30S 132.13E, 22.x.1962, E.S. Ross & D.Q. Cavagnaro (JTPC); 2♂, 6♀ macr., Limestone Creek at Limestone Gorge, Gregory NP, flowing creek, pools, rocky limestone bottom, leaves, debris, 16.03S 130.23E, 22.v.2001, T. Weir & P. Bouchard (ANIC); 1♀ macr., Station Ck, 1km NNE Bullita, Gregory NP, shallow flowing water, rocks, leaves, algae, 16.07S 130.25E, 21.v.2001, T. Weir & P. Bouchard (ANIC); 6♂, 8♀ macr., Station Creek, 1 km NNE Bullita, Gregory NP, small billabong in flowing creek, 16.07S 130.25E, 21.v.2001, T. Weir & P. Bouchard (ANIC); 1♀ macr., Burnside, V.1931, G.L. Windred (ANIC). **Queensland:** 1♀ macr., Glennie Creek, running creek, 12.21S 143.00E, 23.x.1992, T. Weir, P. Zborowski (ANIC); 1♀ macr., Batavia Downs HS, sweeping water, still pool, 12.40S 142.40E, 11 Dec, 1992, W. Dressler & P. Zborowski (ANIC); 1♀ macr., Lydia Creek, water sweep, 12.40S 142.40E, 7.ix.1993, P. Zborowski & S. Shattuck (ANIC); 1♂ macr., Moonlight Creek, water sweep, 12.42S 142.30E, 22.vi.1993, P. Zborowski & I. Naumann (ANIC); 1♀ macr., Archer River along peninsula development road, CL1749, 13.26S 142.56E, 22.viii.1983, J.T. & D.A. Polhemus (JTPC); 2♂ macr., Langi Lagoon, Mungkan Kandju Nat. Pk, at light, open forest, 13.27S 142.42E, 29.vi.1998, T. Weir (ANIC); 1♀ macr., Massy Ck, Silver Plains, Cape York Peninsula, 13.56S 143.29E, 26.vi.1957, J.L. Wassell (UQIC); 2♂, 2♀ macr., Coen River at Coen, CL1748, 13.57S 143.12E, 22.viii.1983, J.T. & D.A. Polhemus (JTPC); 2♀ macr.,

Stewart River, S of Coen, CL1747, 14.07S 143.32E, 22.viii.1983, J.T. & D.A. Polhemus (JTTC); 1 ♀ macr., Edward River, water sweep, 14.40S 142.06E, 14.ix.1993, P. Zborowski & S. Shattuck (ANIC); 1 ♂ 2 ♀ macr., Mt. Webb Nat. Pk, 15.04S 145.07E, 27.iv.1981, D.C.F. Rentz (ANIC); 1 ♀ macr., Mt. Webb Nat. Pk, at light, 15.04S 145.07E, 27.iv.1981, J. Feehan (ANIC); 2 ♀ macr., 21 km W by N of Cooktown, at light, 15.25S 145.03E, 17.v.1977, I.F.B. Common & E.D. Edwards (ANIC); 1 ♂ macr., Innisfail, Eubenangee Swamp, sluggish ditches, 17.32S 146.01E, 5.ix.1965, R.B. Angus (ANIC).