

SIMOCEPHALUS SCHOEDLER (CLADOCERA:DAPHNIIDAE)
IN TROPICAL AUSTRALIA

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ABSTRACT

Simocephalus latirostris Stingelin and *S. vetulus elisabethae* (King) are widespread in tropical Australia, whereas *S. acutirostratus* (King) is restricted to eastern Queensland and *S. serrulatus* (Koch) to the far north. Taxonomic comments are made on each species and a key for their identification is provided.

KEYWORDS: Cladocera, Daphniidae, *Simocephalus*, tropical Australia, distribution, new records.

INTRODUCTION

In a review of Australian Cladocera by Smirnov and Timms (1983), Dumont (1983) reported on the genus *Simocephalus* Schoedler, noting the presence of *S. vetulus elisabethae* (King), *S. vetulus gibbosus* (Sars), *S. latirostris* Stingelin, *S. exspinosus australiensis* (Dana), *S. acutirostratus* (King), and *S. victoriensis* Dumont. This assessment was based on collections mainly from southern Australia, with just a few from northeast Queensland. In a study of the biogeography of cladocerans in tropical Australia (Timms and Morton 1988; Timms 1988), four species of *Simocephalus* were recorded, including *S. serrulatus* (Koch), a new record for Australia. The purpose of this note is to make taxonomic comments on these species and to provide a key for their identification.

This study is based on collections from both the littoral and limnetic (if present) regions from 422 reservoirs, farm dams, lakes, billabongs and swamps throughout tropical Australia, except for the deserts of Western Australia and Northern Territory. Synonymies are restricted to only the original description and the latest description pertinent to Australia. Abbreviations used are: AM = Australian Museum, Bb = billabong, Ck = Creek, L = Lake, Lag = lagoon, MGU = Zoological Museum of Moscow University, NT = Northern Territory, NTM Cr. = Northern Territory Museum, Crustacea Department, Qld = Queensland, QM = Queensland

Museum, R = River, Rd = Road, SA = South Australia, Sw = swamp, WA = Western Australia, WAM = Western Australian Museum, Wh = Waterhole, and Vic = Victoria. Unless otherwise indicated all material was collected by the author and is held in his collections.

Although a key is provided for all species of *Simocephalus* known from Australia, only those from tropical Australia are discussed here. Refer to Dumont (1983) for information on *S. exspinosus australiensis* (Dana), which has been found only once in the tropics (by Sars, 1888 in central Qld), and on *S. victoriensis* Dumont, which so far has been recorded from central western Vic and southeastern SA.

Key to species of *Simocephalus*
in Australia

- 1. Postabdominal claw with an outward basal pecten of enlarged spines.....2
Spines on outward basal pecten of postabdominal claw not enlarged (at moderate magnification no pecten is visible).....4
- 2(1). Frons pointed.....3
Frons rounded.....
.....*exspinosus australiensis* (Dana)
- 3(2). Posterior of valves with a protuberance
.....*acutirostratus* (King)
Posterior of valves evenly rounded.....
.....*victoriensis* Dumont

- 4(1). Frons angulate bearing short spines; ocellus small, rounded.....*serrulatus* (Koch)
Frons rounded; ocellus large, elongated5
- 5(4). Rostrum developed into a prominent 'nose'; ocellus rhomboidal.
.....*latirostris* Stingelin
Rostrum short; ocellus sinuate and pointed at both ends.....
.....*vetulus* (O.F. Müller)

SYSTEMATICS

Simocephalus vetulus (O.F. Müller)

Daphne vetula O. F. Müller, 1776: XXVII, 199, 275.

Simocephalus vetulus elisabethae (King) (Fig. 1E,F)

Daphnia elisabethae King, 1853a: 247-249, Pl. II.

Simocephalus vetulus elisabethae - Dumont 1983: 98-102, Figs 119, 120, Pl. I.

Material. (all females) QUEENSLAND: slides AM P35128, QM W11719, MGU 10254, Vardons Lag, 13°31'S, 142°27'E, 4.vii.1983; same data except pond 2km E of, 13°31'S, 142°28'E; same data except pond 4km E of, 13°31'S, 142°30'E; Pandanus Sw, 13°35'S, 142°34'E, 4.vii.1983; Mango Lag, 13°38'S, 142°34'E, 4.vii.1983; Cattle Sw, 14°54'S, 142°54'E, 26.vi.1983; same data except pond 1 km W of, 14°54'S, 142°54'E; same data except pond 1 km E of, 14°54'S, 142°55'E; same data except pond 2 km E of, 14°54'S, 142°55'E; Sw near Boggy L, 14°43'S, 143°46'E, 5.vii.1983; Sw near Saltwater Ck Crossing, 14°47'S, 143°53'E, 6.vii.1983; Knifehole Lag, 14°36'S, 143°55'E, 6.vii.1983; pool near Hann R Crossing, 14°45'S, 144°02'E, 6.vii.1983; pool in Kennedy R Crossing, 14°46'S, 144°05'E, 6.vii.1983; Tea Tree Lag, 14°44'S, 144°07'E, 6.vii.1983; Sw 2 km NW of Lakefield Station, 14°55'S, 144°11'E, 6.vii.1983; Catfish Bb, 15°04'S, 144°17'E, 6.vii.1983; Little Kennedy L, 15°13'S, 144°37'E, 6.vii.1983; Horseshoe Lag, 15°16'S, 144°37'E, 7.vii.1983; L Emma, 15°17'S, 144°38'E, 7.vii.1983; Jones Lag, 15°26'S, 145°10'E, 8.vii.1983; pool near Annan R Falls, 15°41'S, 145°12'E, 10.vii.1983; The

Lake, Kings Plains Station, 15°41'S, 145°07'E, 10.vii.1983; New Years Day Lag, 15°40'S, 145°01'E, 10.vii.1983; Windermere Lag, 16°29'S, 143°20'E, 12.vii.1983; Mosquito Lag, 16°13'S, 142°55'E, 12.vii.1983; Swan Lag, 15°45'S, 142°55'E, 13.vii.1983; Red Lily Bb, 15°29'S, 142°48'E, 13.vii.1983; Sandy Bb, 15°29'S, 142°42'E, 13.vii.1983; unnamed lag near Barwon R, 16°52'S, 145°42'E, 23.vi.1983; unnamed lag at Rifle Ck, Mt. Molloy, 16°40'S, 145°19'E, 10.vii.1983; Emerald Ck Dam, 17°02'S, 145°30'E, 11.vii.1983; Dulbil Weir, 17°03'S, 145°29'E, 11.vii.1983; Nordellos Lag, 17°07'S, 145°25'E, 11.vii.1983; Eureka Ck, 17°11'S, 145°02'E, 11.vii.1983; a dam on Coolabbi Ck, 17°31'S, 145°29'E, 18.vi.1983; a farm dam 1 km S of Kaban, 17°32'S, 145°25'E, 18.vi.1983; same data except farm dam 2 km S of, 17°33'S, 145°25'E; a farm dam near Tumoulin, 17°34'S, 145°27'E, 20.vi.1983; Tablelands Tin Dam, 17°40'S, 145°06'E, 20.vi.1983; Spring Ck Dam, 17°43'S, 145°04'E, 20.vi.1983; Glencoe Lag, 17°22'S, 141°30'E, 14.vi.1983; Maggieville Lag, 17°27'S, 141°10'E, 14.vii.1983; Stake Lag, 17°32'S, 141°10'E, 14.vii.1983; Goose Lag, 17°39'S, 141°05'E, 17.vii.1983; The Lake Lag, 17°50'S, 141°08'E, 17.vi.1983; Wairuna Lag, 18°27'S, 145°19'E, 20.vi.1983; East Pelican L, 18°39'S, 145°08'E, 19.vi.1983; unnamed lag near Valley of Lagoons Homestead, 18°40'S, 145°06'E, 19.vi.1983; Horseshoe Lag, 20°05'S, 145°28'E, 12.vi.1983; Horse Lag, 20°04'S, 145°29'E, 12.vi.1983; Pink Lily Lag, 19°57'S, 145°37'E, 13.vi.1983; Red Lily Lag, 19°48'S, 145°55'E, 13.vi.1983; Horseshoe Lag, 19°33'S, 147°08'E, 17.vi.1983; Didjeridu Lag, 19°34'S, 147°15'E, 17.vi.1983; Payards Lag, 19°37'S, 147°19'E, 15.vi.1983; Gladys Lag, 19°53'S, 147°11'E, 15.vi.1983; same data except Sw near, 19°53'S, 147°11'E; Fowlers Lag, 19°44'S, 147°20'E, 14.vi.1983; Sw near Olsens Lag, 19°41'S, 147°29'E, 14.vi.1983; Berdaje Lag, 19°44'S, 147°29'E, 14.vi.1983; Flinders R at Richmond, 20°42'S, 143°08'E, 10.vii.1984; Nonda Ck at Nonda, 20°41'S, 142°28'E, 10.vii.1984; McIntyre Lag, 20°07'S, 141°20'E, 10.vii.1984; Corella Dam, 20°51'S, 140°02'E, 11.vii.1984; Spring Ck at Springvale Station, 23°34'S, 140°42'E, 12.vii.1984; Lion Lag, 23°22'S, 150°25'E,

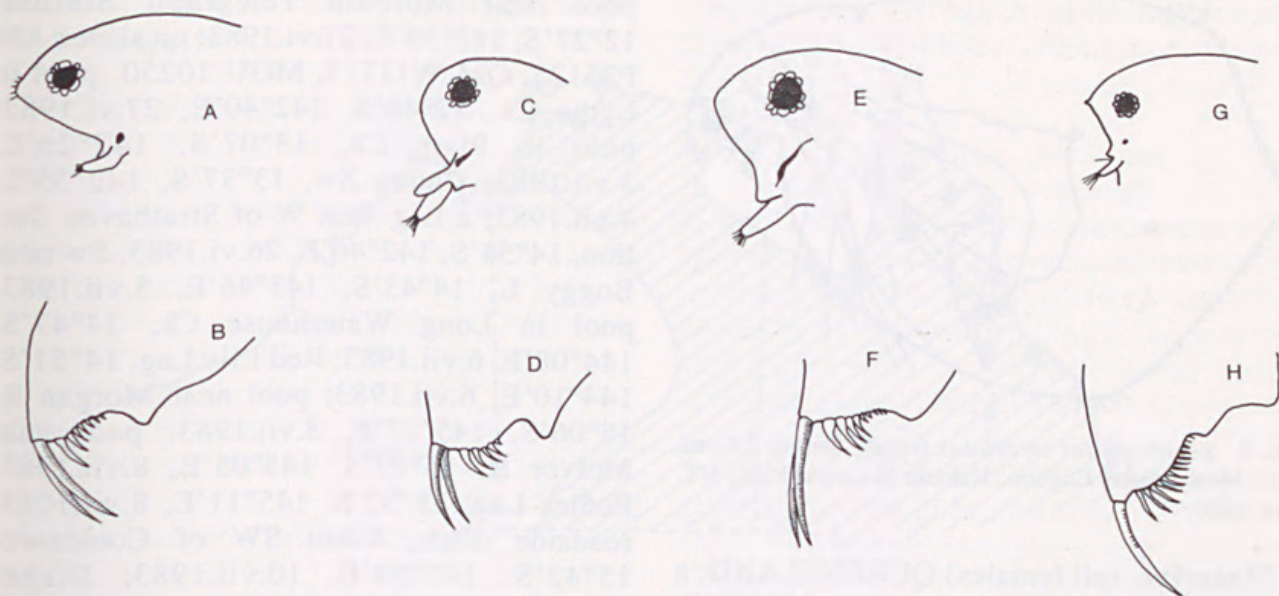


Fig. 1. *Simocephalus* spp. A, head and B, postabdomen of *S. serrulatus* female, length 2.6mm, from Joes Waterhole, Durack R. W.A., 5.x.1982; C, head and D, postabdomen of *S. latirostris* female, length 2.8mm, from a pool in Lydia Creek, Batavia Downs Station, Cape York Peninsula, Qld, 27.vi.1983; E, head and F, postabdomen of *S. vetulus elisabethae* female, length 2.2mm, from Sandy Billabong, Kowanyama, Cape York Peninsula, Qld, 13.vii.1983; G, head and H, postabdomen of *S. acutirostratus* female, length 3.8mm, from Horseshoe Lagoon, via Charters Towers, Qld, 12.vi.1983.

25.iv.1984; Crescent Lag, 23°25'S, 150°30'E, 25.iv.1984; unnamed Lag near Scrubby Ck, 23°25'S, 150°28'E, 25.iv.1984; Langley Ck, 23°27'S, 150°25'E, 25.iv.1984; same data except unnamed Lag near, 23°27'S, 150°25'E; Eight Mile Lag, 23°39'S, 150°40'E, 26.iv.1984.

NORTHERN TERRITORY: unnamed Bb by South Alligator R, 12°37'S, 132°25'E, 6.vii.1981; Fogg Dam, 12°34'S, 131°18'E, 6.vii.1981; Acacia Bb, 12°48'S, 131°12'E, 11.x.1982; same data except unnamed Lag near, 12°51'S, 131°12'E; unnamed Lag near Marrakai Crossing, 12°53'S, 131°12'E, 11.x.1982; unnamed Lag on Marrakai Rd, 12°55'S, 131°15'E, 11.x.1982; Darwin R Dam, 12°50'S, 130°59'E, 3.vii.1981; Manton Dam, 12°51'S, 131°08'E, 3.vii.1981; Little Red Lily Lag, 14°55'S, 133°26'E, 12.vii.1981; Adelaide R Crossing, 13°29'S, 131°04'E, 2.vii.1981; farm dam on Boorooloola Rd, 16°44'S, 135°15'E, 13.vii.1981; Eight Mile Lag, 16°30'S, 136°14'E, 14.vii.1981; on slide AM P35129, NTM Cr. 2271, MGU 10255, Ormiston Gorge, 23°38'S, 132°44'E, 28.vi.1981; pool in the Valley of the Winds, 25°18'S, 130°45'E, 23.vi.1981.

Remarks. The status of Australian forms of the *vetulus* group has varied over the years.

At present *S. elisabethae* King and *S. dulvertonensis* Smith are considered to be one subspecies (*elisabethae*), and *S. gibbosus* Sars another subspecies of *S. vetulus* (Dumont 1983). The only known difference between the two subspecies is the more strongly developed brood pouch in *S. gibbosus*, so that the upper posterior part of the valves is asymmetrically produced. However, juveniles of *S. vetulus elisabethae* also have a similar asymmetry (Houghton 1981), so adults are needed for positive identification. Almost all collections of *S. vetulus* from tropical Australia contained adults of *S. vetulus elisabethae*. The few collections in which only juveniles were present are therefore assumed to be of that subspecies also.

Distribution. In the Australian tropics *S. vetulus elisabethae* is absent from northwest WA, sparsely distributed in NT, and only common in eastern Qld (Fig. 3A). It seems to prefer well-vegetated billabongs and farm dams.

Simocephalus serrulatus (Koch)
(Fig. 1A,B, 2)

Daphnia serrulata Koch, 1841: 14.

Simocephalus serrulatus - Lilljeborg 1900: 179, Pl. XXVI, Figs 9-16.

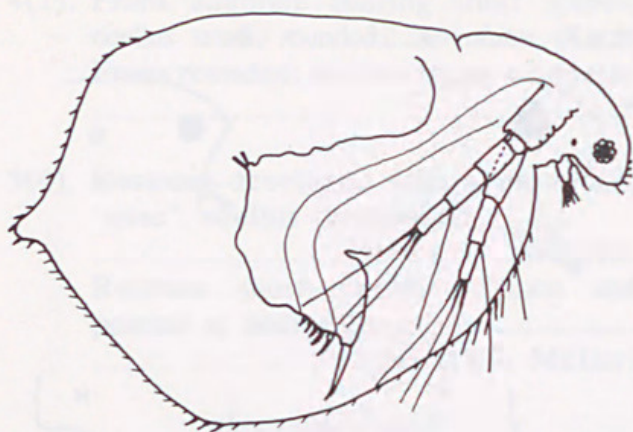


Fig. 2. *Simocephalus serrulatus* female, length 2.4mm, from Mudginberri Lagoon, Kakadu National Park, NT, 8.vi.1981.

Material. (all females) QUEENSLAND: a Lag near 6 Mile Yards, 14°55'S, 142°53'E, 26.vi.1983; on slides AM P35127, QM W11718, MGU 10251, pond 2km E of Cattle Sw, 14°54'S, 142°55'E, 26.vi.1983; Goolboo Lag, Silkwood, 17°43'S, 146°01'E, 24.vi.1983.

NORTHERN TERRITORY: on slides AM P35126, NTM Cr. 2270, MGU 10252, Mudginberri Lag, 12°35'S, 132°52'E, 8.vii.1981; Wh on Magela Ck, 12°35'S, 132°52'E, 8.vii.1981.

Remarks. This species is similar in many respects (e.g. structure and spination of postabdomen) to *S. vetulus*, but the angulate frons, which bears *ca.* 5 small, narrow spines on the angle and extending onto the upper side, and the small rounded or perhaps diamond-shaped ocellus, serve to distinguish it. The rostrum is also more developed in the present species, and the protuberance (= posterior spine of some authors) on the middle-posterior portion of the valves is more pronounced than in *S. vetulus elisabethae*. The protuberance of the latter is similar to that of *S. latirostris*.

Distribution. Sparse in the most northerly parts (Fig. 3C). All localities were shallow, well-vegetated and semi-permanent. These records are new for Australia.

Simocephalus latirostris Stingelin
(Fig. 1C,D)

Simocephalus latirostris Stingelin, 1906: 187, Figs 5-7; Dumont 1983: 103-104, Figs 121, 122, Pl. 1,2.

Material. (all females) QUEENSLAND: pool near Moreton Telegraph Station, 12°27'S, 142°39'E, 27.vi.1983; on slides AM P35125, QM W11717, MGU 10250, pool in Lydia Ck, 12°40'S, 142°40'E, 27.vi.1983; pool in Plain Ck, 13°07'S, 142°26'E, 3.vii.1983; Chong Sw, 13°37'S, 142°35'E, 4.vii.1983; a Lag 4km W of Strathaven Station, 14°54'S, 142°46'E, 26.vi.1983, Sw near Boggy L, 14°43'S, 143°46'E, 5.vii.1983; pool in Long Waterhouse Ck, 14°47'S, 144°08'E, 6.vii.1983; Red Lily Lag, 14°51'S, 144°10'E, 6.vii.1983; pool near Morgan R, 15°06'S, 145°17'E, 8.vii.1983; pool near McIvor R, 15°09'S, 145°05'E, 8.vii.1983; Pooles Lag, 15°32'S, 145°11'E, 8.vii.1983; roadside ditch, 44km SW of Cooktown, 15°42'S, 145°04'E, 10.vii.1983; Dinner Camp Lag, 16°34'S, 143°31'E, 12.vii.1983; Windermere Lag, 16°29'S, 143°20'E, 12.vii.1983; Wh near Alberts Lag, 16°28'S, 143°15'E, 12.vii.1983; Widow Lag, 16°17'S, 143°00'E, 12.vii.1983; Dunbar Lag, 16°03'S, 142°22'E, 13.vii.1983; Wh near Rutland Plains Station, 15°40'S, 142°52'E, 13.vii.1983; Centenary L, Cairns, 16°55'S, 145°45'E, 21.vi.1983; Mulgrave R at Gordenvale, 17°06'S, 145°48'E, 21.vi.1983; pool in Stirling Ck, 17°13'S, 141°42'E, 14.vii.1983, a Wh on 8 Mile Ck, 17°25'S, 141°18'E, 14.vii.1983; unnamed lag, 4km S of Normanton, 17°40'S, 141°07'E, 17.vii.1983; Snakehole Wh, 17°45'S, 141°07'E, 17.vii.1983; same data except 4km N of, 17°43'S, 141°09'E; 12 Mile Lag, 17°51'S, 141°07'E, 17.vii.1983; pond near Bynoe R, 17°52'S, 140°48'E, 17.vii.1983; Wh at Inverleigh, 18°01'S, 140°34'E, 17.vii.1983; M Lag, 18°06'S, 140°17'E, 15.vii.1983; Judy Lag, 17°57'S, 139°35'E, 15.vii.1983; Old Station Wh, 17°56'S, 139°47'E, 15.vii.1983; Bullock Wh, 17°56'S, 139°45'E, 15.vii.1983; Yarrum Lag, 17°49'S, 139°34'E, 15.vii.1983; Harris Lag, 17°49'S, 139°33'E, 15.vii.1983; Woods Lag, 17°44'S, 139°30'E, 15.vii.1983; Gap Dam, 18°02'S, 140°02'E, 15.vii.1983; Fork yard Lag, 17°56'S, 140°10'E, 15.vii.1983; same data except a Wh near Saltern Lag, 18°41'S, 145°03'E, 19.vi.1983; same data except unnamed Lag S of; a dam 5km S of Camel Ck Station, 18°52'S, 145°30'E, 19.vi.1983; Farquesons Lag, 20°04'S, 145°26'E, 12.vi.1983; Dry Lag, 20°03'S, 14°30'E, 12.vi.1983;

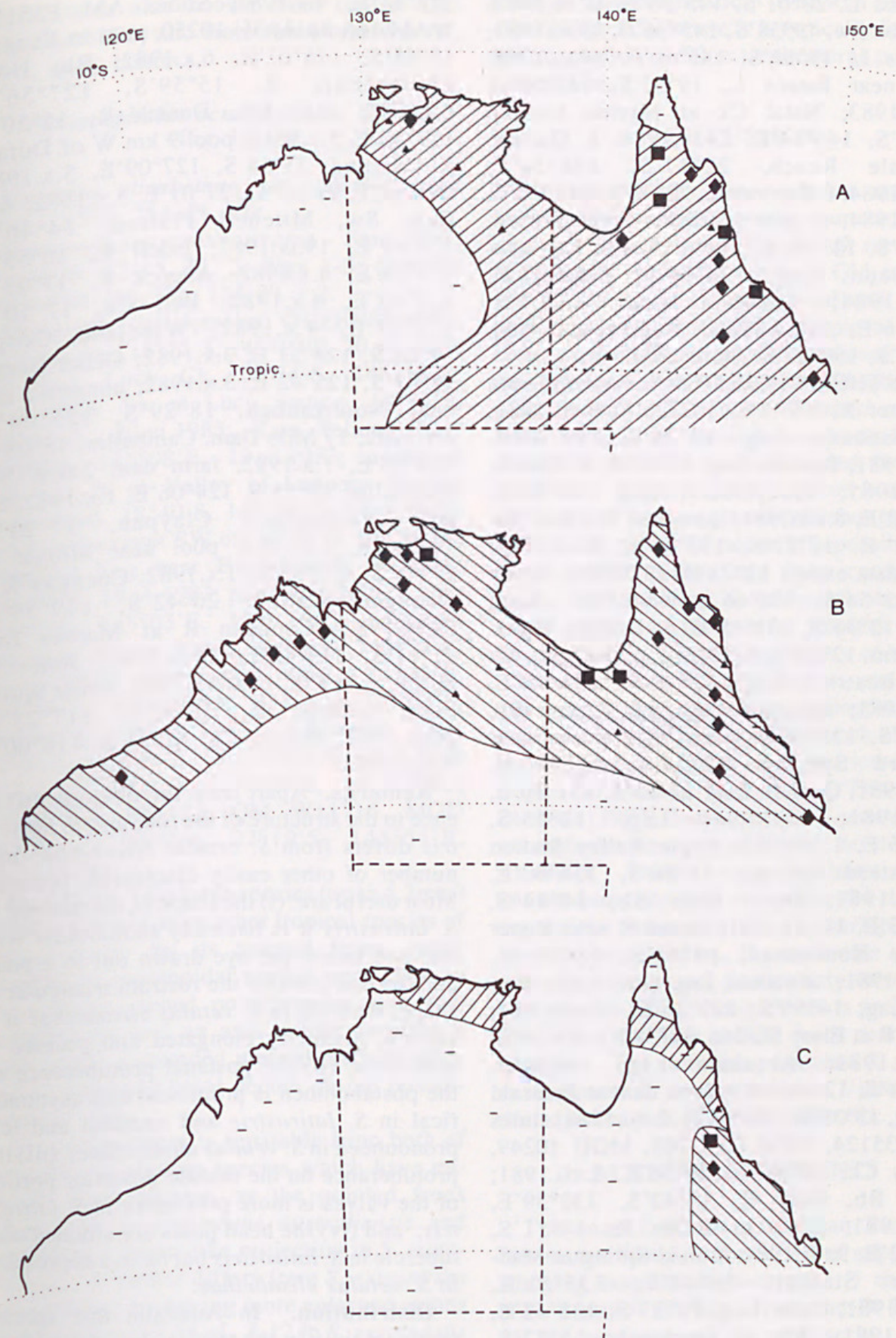


Fig. 3. Tropical Australia showing the distribution of A, *S. vetulus elisabethae*; B, *S. latirostris*; and C, *S. serrulatus* (acute oblique stripes) and *S. acutirostratus* (obtuse oblique stripes). Each symbol represents collections containing the nominated species in an area where 10-15 (mean 12.8) localities were sampled $\blacktriangle$ = 1-2 collections, $\blacklozenge$ = 3-5 collections, and $\blacksquare$ = 6 or more collections. Dashes indicate no specimens were caught in that area.

Toomba L, 20°01'S, 145°36'E, 12.vi.1983; Toomba Sw, 19°58'S, 145°36'E, 13.vi.1983; Reeves L, 19°53'S, 145°50'E, 12.vi.1983; pool near Patens L, 19°52'S, 145°59'E, 12.vi.1983; Natal Ck at Myrtna Station, 21°17'S, 146°14'E, 24.iv.1984; L Galilee, Oakvale Reach, 22°17'S, 145°56'E, 23.iv.1984; L Barcoorah, 22°31'S, 145°21'E, 22.iv.1984; a dam on Silver Hills Station, 20°37'S, 143°06'E, 10.vii.1984; a Lag near Edenbann Lag, 23°04'S, 150°07'E, 26.iv.1984; Canoona Lag, 23°07'S, 150°16'E, 26.iv.1984; Boomerang Lag, 23°14'S, 150°22'E, 26.iv.1984.

NORTHERN TERRITORY: Pool on South Alligator R, 12°37'S, 132°26'E, 6.vii.1981; Malabanbanju Lag, 12°26'S, 132°44'E, 6.vii.1981; Burulba Lag, 12°47'S, 132°45'E, 8.vii.1981; Mudjinberri Lag, 12°35'S, 132°52'E, 8.vii.1981; unnamed Bb, East Alligator R, 12°27'S, 132°58'E, 8.vii.1981; same data except 12°28'S, 132°59'E; Sandy Bb, 12°54'S, 132°46'E, 9.vii.1981; Fogg Dam, 12°34'S, 131°18'E, 6.vii.1981; Harrison Dam, 12°34'S, 131°20'E, 6.vii.1981; Wh near Beatrice Lag, 12°38'S, 131°19'E, 6.vii.1981; unnamed Lag near Acacia Bb, 12°49'S, 131°12'E, 11.x.1982; quarry near Howard Springs, 12°28'S, 131°04'E, 5.vii.1981; Quambi Lag, 12°23'S, 131°10'E, 5.vii.1981; McMinns Lag, 12°33'S, 131°05'E, 11.x.1982; Roper Valley Station Homestead Springs, 14°56'S, 134°00'E, 12.vii.1981; Duck Hole Bb, 14°44'S, 134°03'E, 12.vii.1981; Roper R near Roper Valley Homestead, 14°51'S, 134°01'E, 12.vii.1981; unnamed Lag near Little Red Lily Lag, 14°56'S, 133°25'E, 12.vii.1981; Roper R at Elsey Station, 14°58'S, 133°20'E, 12.vii.1981; Abraham Lag, 14°54'S, 133°04'E, 12.vii.1981; farm dam at Emerald Spring, 13°39'S, 131°38'E, 2.vii.1981; slides AM P35124, NTM Cr. 2269, MGU 10249, Survey Ck, 13°30'S, 130°56'E, 2.vii.1981; Yarra Bb, Daly R, 13°42'S, 130°39'E, 2.vii.1981; pool in Edith R, 14°11'S, 132°02'E, 9.vii.1981; Bessie Spring at MacArthur Station, 16°40'S, 135°51'E, 12.vii.1981; Leila Lag, 16°37'S, 135°42'E, 14.vii.1981; Wh at Larramah, 15°57'S, 133°27'E, 1.vii.1981.

WESTERN AUSTRALIA: Irrigation ditch, Kununurra, 15°45'S, 128°42'E, 7.x.1982; L Kununurra, 15°48'S, 128°42'E, 7.x.1982; pool in Ord R at Ivanhoe Crossing, 15°41'S,

128°41'E, 7.x.1982; Slides AM P35125, WAM 166-84, MGU 10250, pool in King R, 15°55'S, 128°07'E, 6.x.1982; Big Hole, Chamberlain R, 15°59'S, 127°56'E, 6.x.1982; Joes Wh, Durack R, 15°50'S, 127°42'E, 5.x.1982; pool 9 km W of Durack R Crossing, 15°58'S, 127°09'E, 5.x.1982; Dawn Ck, 15°59'S, 127°01'E, 5.x.1982; Airfield Sw, Mitchell Plateau, 14°46'S, 125°49'E, 19.ix.1982; Isdell R, 16°55'S, 125°34'E, 4.x.1982; Adcock R, 17°03'S, 125°42'E, 4.x.1982; Bell Ck, 17°10'S, 125°21'E, 4.x.1982; Windjana Gorge, 17°24'S, 124°57'E, 3.x.1982; Geike Gorge, 18°07'S, 125°42'E, 3.x.1982; unnamed Lag near Noonkanbah, 18°29'S, 125°04'E, 1.x.1982; 17 Mile Dam, Camballin, 18°03'S, 124°20'E, 1.x.1982; farm dam 24km NW Camballin, 17°55'S, 124°06'E, 1.x.1982; Sw near Yabbagooly Claypan, 17°22'S, 123°45'E, 1.x.1982; pool near Minnie R, 17°45'S, 123°35'E, 1.x.1982; Coongan R at Coongan Station, 20°42'S, 119°39'E, 28.ix.1982; Coongan R at Marble Bar, 21°11'S, 119°42'E, 28.ix.1982; Jones R, 20°59'S, 117°23'E, 26.ix.1982; White Spring Pool, George R, 21°08'S, 117°25'E, 26.ix.1982; Hooley Ck, 21°53'S, 118°00'E, 27.ix.1982.

Remarks. Apart from the obvious difference in the structure of the rostrum, *S. latirostris* differs from *S. vetulus elisabethae* in a number of other easily discernible features. Most useful are: (i) the shape of the ocellus: in *S. latirostris* it is basically rhomboidal with one end below the eye drawn out to a point and the end towards the rostrum triangular in shape, whereas in *S. vetulus elisabethae* it is sinuate, distinctly elongated and pointed at both ends; (ii) the postanal protuberance on the postabdomen is prominent and asymmetrical in *S. latirostris* and rounded and less pronounced in *S. vetulus elisabethae*; (iii) the protuberance on the middle posterior portion of the valves is more prominent in *S. latirostris*; and (iv) the head pores are situated on a tubercle in *S. latirostris* but lie in a depression in *S. vetulus elisabethae*.

Distribution. In Australia this species occurs mainly in the tropics, but it is uncommon in drier areas (eg. 90-Mile Desert in WA), in southern parts (as in NT and Qld), at higher altitudes (eg. Atherton Tableland, Qld), and in areas with distinctly acid waters (eg. tip of Cape York) (Fig. 3B). Outside the

tropics it is also known from central Qld (Dumont 1983) and from southwest WA (R. Shiel, pers. comm.).

***Simocephalus acutirostratus* (King)**
(Fig. 1G, H)

Daphnia elisabethae var. *acuti-rostrata* King, 1853b: 254, Pl. VIc.

Simocephalus acutirostratus - Sars 1888: 67; 1896: 12-15, Pl. 2, Figs 1-3; Dumont 1983: 104-105, Fig. 124, Pl. 1,2.

Material. (all females) QUEENSLAND: Wairuna Sw, 18°27'S, 145°19'E, 20.vi.1983; Sw near Lucy Ck, 18°34'S, 145°18'E, 20.vi.1983; Sw at Lucy Station, 18°35'S, 145°16'E, 20.vi.1983; East Pelican Lag, 18°39'S, 145°08'E, 19.vi.1983; unnamed Lag just N of Valley of Lagoons Station Homestead, 18°40'S, 145°06'E, 19.vi.1983; same data except SW of, 18°41'S, 145°05'E; unnamed Lag near Burdekin R, 18°42'S, 145°04'E, 19.vi.1983; pool near Saltern Lag, 18°41'S, 145°03'E, 19.vi.1983; unnamed Lag near Myora Yards, 20°05'S, 145°28'E, 12.vi.1983; Horseshoe Lag, 20°05'S, 145°28'E, 12.vi.1983; Dry Lag, 20°03'S, 145°30'E, 12.vi.1983; Lolworth Sw, 19°59'S, 145°36'E, 13.vi.1983; Sw 2km N of Ayrville, 19°41'S, 147°20'E, 15.vi.1983; slides AM P35122, QM W11716, MGU 10253, L Galilee, 22°19'S, 145°51'E, 22.iv.1984.

Remarks. This large species (up to 4.2mm) is distinguished from other tropical species of *Simocephalus* by its pointed frons, small rounded to rhomboidal ocellus very close to the rostrum, broad postabdomen with two embayments and an anal corner forming a right angle, a rounded preanal protuberance, and an enlarged basal pecten on the postabdominal claw.

S. acutirostratus is separable from both of the other Australian species which have enlarged basal pectens by the pointed frons (absent in *S. exspinosus australiensis* and present as a finger-like projection in *S. victoriensis*). It further differs from *S. exspinosus australiensis* by having more enlarged spines in the pecten (12-18 cf. 8-12 in *S. exspinosus australiensis*) and from *S. victoriensis* by the shallow postabdominal embayments and smoothly rounded anal corner in this species.

Distribution. Localised along the coast and adjacent hinterland of Qld, from the vi-

cinity of Townsville south to Bowen (Dumont 1983) (Fig. 3C), where it is typically found in broad, shallow (<50cm) ephemeral pools on floodplains.

DISCUSSION

Six species of *Simocephalus* are now known for Australia, with four occurring regularly in the tropics (Fig. 3). *S. serrulatus* occurs only in the far north of Qld and NT, and *S. latirostris* is widespread and indeed penetrates just south of the Tropic of Capricorn, west of Rockhampton (Dumont 1983), and is known from southwest WA (R. Shiel, pers. comm.). *S. vetulus elisabethae* is almost ubiquitous throughout Australia, although it has not been recorded from the northwest. Since it and *S. latirostris* are both abundant in well-vegetated billabongs in the tropics, but rarely co-occur, it is possible they have similar niches and may compete at times. Nevertheless, *S. latirostris* seems the better adapted of the two for tropical waters, as indicated by the greater variety of habitats it occupies, its wider distribution, and generally greater abundance in collections. *S. acutirostratus*, while found in much of southern and eastern Australia, is restricted in the tropics to eastern Qld around Townsville. Dumont (1983) considers that *S. acutirostratus* replaces the cosmopolitan *S. serrulatus* in Australia. Even though the latter is now known from northern Australia, the distributions of the two species do not overlap. Of the two southern species, *S. exspinosus australiensis* is widespread, particularly in southern and western areas, though there is an isolated old record by Sars (1888) from near Rockhampton. The remaining species, *S. victoriensis* occurs in central western Victoria and the adjacent part of South Australia.

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