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THE AUSTRALIAN FRESHWATER PRAWNS OF THE FAMILY ATYIDAE

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(Figures 1-11.)

Very little is known of the Australian freshwater Atyidae. These small prawns are widespread in all the permanent waters, occurring in small waterholes as well as in larger lakes and streams. They generally prefer areas where there is an abundant growth of aquatic plants but are also found in quite open water. Some of the species are found only just above the tidal zone and others where the water is slightly brackish. There are only two major papers on the Australian representatives of this group and these were both published in 1926. Most surprisingly the close appearance of the two has not resulted in any synonymy. Calman (1926) erected a new genus *Caridinides* for a north Queensland species and representatives of three well known genera *Atya*, *Paratya* and *Caridina* also occur.

The single species of *Atya*, though widespread, is not at all common. These prawns are the largest of the group with a length up to about 55 mm. *Caridana* and the related *Caridinides* are widespread, more in the north, particularly Queensland, where there are six species of *Caridina* in addition to the one species of *Caridinides*. The only species of *Caridina* recorded outside Queensland is *mccullochi* Roux from Pallal, Horton River, New South Wales. *Paratya* is widespread throughout southern Queensland, New South Wales, Victoria, South Australia and Tasmania. In Queensland specimens of this genus have not been collected further north than the Burnett River.

Variation is common in most species of this family so that it is often difficult to identify single specimens, particularly if they are juvenile. Oviparous females are much more readily identified for egg-size is rather constant for a given species, if one bears in mind possible variation due to embryonic development and also to the manner of preservation.

Family ATYIDAE.

Caridea in which the first two pairs of legs are chelate and similar and only of moderate size. The fingers of the chelae are spooned and tipped with tufts of long hairs.

Genus *Atya* Leach, 1816.

No exopodites on any of the pereopods. Second pereopods similar to first, with carpus excavated and the palmar portion of the chelae obsolete.

Atya striolata McCulloch & McNeill, 1923.

Atya striolata McCulloch & McNeill, 1923, Rec. Austr. Mus., 14: 55; Roux, 1926, Rec. Austr. Mus., 15: 253.

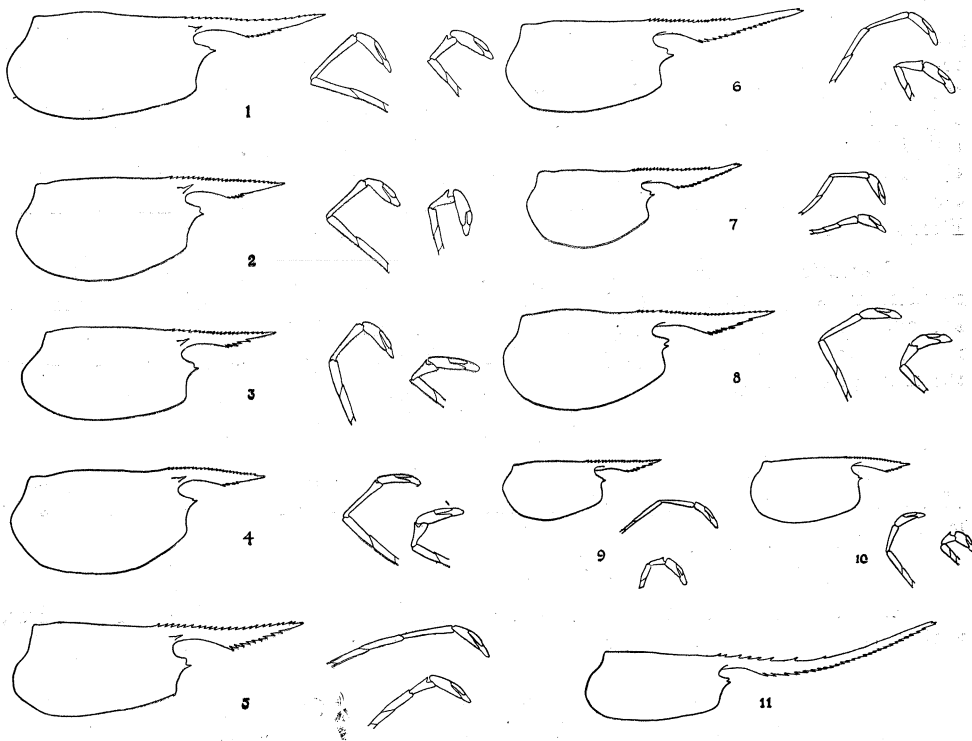
The series of specimens from Cave Creek, Upper Nerang River, Queensland is described to facilitate comparison with the New South Wales form as described by McCulloch & McNeill.

Size.—43-55 mm. Smallest specimen male; all the remainder (6) females.

Colour.—Dull reddish-brown speckled with microscopic black dots. A broad, almost white, median band extending from the rostrum to the telson and sharply defined by a black border of irregular thickness. Five longitudinal stripes along each side of the carapace, somewhat irregular in outline and bordered in black similar to the median dorsal band. Two similar stripes occur along each side of the abdomen.

Rostrum with four, sometimes five, spines below—the only male specimen shows three. Lower orbital angle forming a sharp projecting spine. Telson with a row of six, sometimes five, movable spinules on each side of the median line. Twenty-five to twenty-eight of the basal joints of the external flagellum of the antennule are much thickened. Merus of third pair of periopods armed with two or three minute spicules on its upper margin. Three, or sometimes two, larger spines form a row on its postero-inferior surface and five or six stout spinules form a crest on the distal portion of its interno-inferior margin. The fourth periopod is similar to the third, but less spinate except that there are two to four, generally four, large spines forming a row on its postero-inferior surface. Fifth periopods with two large spines forming the row on its postero-inferior surface.

Queensland Occurrence.—Cave Creek, Upper Nerang River, almost on the Queensland-New South Wales border (August, 1943, E. F. Riek).



Figures 1-11.

Genus *Paratya*. Lateral view of cephalothorax and first and second periopods X 4 ca. Fig. 1 *Paratya australiensis australiensis* Kemp; Fig. 2 *Paratya australiensis arrostra* nov.; Fig. 3 *Paratya atacta atacta* sp. nov.; Fig. 4 *Paratya atacta adynata* nov.; Fig. 5 *Paratya tasmaniensis* sp. nov.

Genus *Caridina*. Lateral view of cephalothorax and first and second periopods. Only cephalothorax for figure 11 X 4 ca. Fig. 6 *Caridina nilotica meridionalis* Roux; Fig. 7 *Caridina nilotica aruensis* Roux; Fig. 8 *Caridina indistincta indistincta* Calman; Fig. 9 *Caridina indistincta sobrina* nov.; Fig. 10 *Caridina thermophila* sp. nov.; Fig. 11 *Caridina gracilirostris* de Man.

Distribution.—Nepean River and Woronora River, N.S.W.

The prawns were taken at the overflow of a pool at the base of a small fall. Though the pools below this were carefully searched no prawns could be seen, nor for that matter, could they be found other than just at the overflow of the main pool. The specimens differ slightly from the topotypes examined, the rostrum being thinner and straighter and with sharper spines.

Genus **Paratya** Miers, 1882.

In this genus there is an exopodite on each of the five pereopods. Roux (1926) has subdivided the genus into two distinct subgenera on the structure of the carpus of the chelipeds, especially on the second pair.

Subgenus **Paratya** Roux, 1926.

Type of subgenus, *Atyephyra compressa* de Hann.

Carpus of the second chelipeds elongated and but very slightly excavated in front. The digits of the chelipeds provided with long and thin stylets. In the subgenus *Xiphatyoidea* the carpus is short and strongly excavated in front.

Only one species has been recognized for the Australian mainland. This was considered a very variable species ranging from the Burnett River in Queensland through New South Wales, Victoria and South Australia to Tasmania.

The size of the egg is rather constant, when compared under the same conditions, and allows a fairly clear separation of the species. As ovigerous females are not always available, other characters are necessary for the ready identification of material and these are supplied by the pereopods, particularly the carpus of the first pereopods. The rostrum is somewhat variable, but is of some specific value, but there is no close correlation between egg-size and the shape of the rostrum. The Tasmanian species has the smallest eggs which are only half the size of the largest ones at the same stage of development.

Paratya (Paratya) australiensis Kemp, 1917.

(Figure 1.)

Miersa compressa Ortmann, 1894, Jenaische Denkschrift, 8 : 10.

Paratya australiensis Kemp, 1917, Rec. Ind. Mus. Calcutta, 13:303; Calman 1926, Ann. Mag. Nat. Hist., ser. 9, 17:241; Roux 1926, Rec. Austr. Mus., 15:239.

The type locality of this species is Clyde, Sydney, N.S.W., but the specimens described by Kemp were not ovigerous. However, ovigerous females collected from Seven Hills, Sydney, agreeing in all essential characters with the specimens examined by Kemp are described below.

Rostrum extending well beyond the antennular peduncle, gently curved downwards at the base and upward at the tip, slender, its depth about one-ninth of its length, twenty to thirty-two spinules above, of which one to three are behind the orbit, the distal ones extending almost or quite to the tip and with from five to nine teeth below but generally with not more than seven. Stylocerite reaching to the proximal end of the second antennular segment, distal spine of first segment quite short and blunt. Antennal scale a little longer than the antennular peduncle. Carpus of the first chelipeds about three times as long as wide, and shorter than the chela, which has the fingers longer than the palm. Carpus of the second chelipeds about six times as long as wide, very much longer than the chela, which has the fingers longer than the

palm. Dactylus of third and fourth periopods one-fifth of propodus, with ten or eleven, rarely nine or twelve, evenly graduated spines; that of fifth periopods one-fourth of propodus with seventy or more spines. Telson with three pairs of dorsal spinules (including the subterminal pair) and with six terminal plumose spines, of which the outer pair are the strongest, but the median pair the longest. Eggs small and numerous, length 0.75-0.80 mm. Length ovigerous female, 33 mm.

Type locality.—Clyde, Sydney.

Distribution.—Seven Hills, Sydney, N.S.W. The specimens from Norton's Basin, Nepean River; Marrickville and Middle Harbour, Sydney, and from Jamberoo described by Roux (1926) probably belong to this species.

The specimens of this species can be separated readily from those of *P. atacta adynata*, also from the Sydney region, on the size of the egg and the shape of the rostrum.

***Paraty australiensis arrostra*, nov.**

(Figure 2.)

Rostrum short, straight, not reaching the distal end of the antennular peduncle, eighteen to twenty-four spinules on its upper surface of which from one to three are behind the orbit and with from three to eight below but generally with four. Stylocerite and antennal scale as in typical form. Carpus of first cheliped stouter and more deeply excavate on the anterior border than in the typical form. There are fewer spines (65) on the dactylus of the fifth periopods and only seven or eight on the third and fourth. Eggs of much the same size as in the typical form, but a little smaller, 0.70 to 0.75 mm. in length. Length ovigerous female, 35 mm.

Type.—Holotype ovigerous female and paratypes in the Australian Museum, Sydney.

Type locality.—Terrors Creek, Dayboro, Queensland. (8th August, 1942, E. F. Riek).

Distribution.—Running Creek, Queensland-N.S.W. border; Mary River, Conondale; Enoggera Reservoir; Cedar Creek, Tambourine; Cotter River, A.C.T.; Crookwell, N.S.W.; Fitzroy Falls, N.S.W.

Ortmann's specimens from the Burnett River, Queensland, probably belong to this subspecies as, too, do some of the specimens from North Yanco, Narrandera, described by Roux (1926:241) and those by Calman (1926) from the St. George District, Queensland.

This subspecies differs from the typical form in the shape of the rostrum and of the carpus of the first cheliped.

***Paraty atacta*, sp. nov.**

(Figure 3.)

Rostrum somewhat variable, in some cases extending well beyond the antennular peduncle, jutting more or less straight out without obvious sign of dorsal curvature. The slenderness of the rostrum depends largely on its proportionate length. There is considerable variation in the number of spinules of the rostrum. There are twenty-one to thirty spinules above, of which one to three are behind the orbit, the distal ones extending nearly or quite to the tip and with from five to sixteen below but generally less than ten. Stylocerite reaching at least as far as, but not quite to the middle of, the second antennular segment and the distal spine of the first segment extending over the proximal third of the second segment. Antennal scale a

little longer than the antennular peduncle. Carpus of first chelipeds only about two times as long as wide, very deeply excavate and shorter than the chela, which has the fingers slightly shorter than the palm. Carpus of second chelipeds about five times as long as wide, considerably longer than the chela, which has the fingers equal to the palm. Dactylus of third and fourth periopods one-fifth of propodus, with eight to ten graduated spines; that of fifth periopods one-fourth to one-fifth of the propodus, with about fifty-nine fine spines. Telson with three pairs of dorsal spinules (including subterminal pair) and six (or seven) plumose spines of which the median ones are the longest. Eggs large, length 0.89 to 0.97 mm. Length ovigerous female, 36 mm.

Type.—Holotype ovigerous female and paratypes in the Australian Museum, Sydney.

Type locality.—Upper Nerang River; south Queensland (20th August, 1943, E. F. Riek).

Distribution.—Waraba Creek, Caboolture; Conondale; Lamington National Park.

The rostral structure is very similar to that of *australiensis arrostra*, but the two can be separated readily on the structure of the first and second periopods and on egg size.

***Paratya atacta adynata*, nov.**

(Figure 4.)

Rostrum short, not reaching to the distal ends of the antennular peduncle and of rather stout shape. Fewer spinules on the rostrum than in the typical form—fifteen to thirty above, of which 0 to four are behind the orbit and three to eight below but generally with five or six. Stylocerite slightly shorter, often not quite reaching proximal end of second segment of antennular peduncle. Carpus of first periopod not quite as stout as in the typical form. Dactyli of third and fourth periopods with eight or nine spines, that of fifth periopod with about forty-eight spines. Eggs of much the same size as in the typical form. Length ovigerous female 34 mm.

Type.—Holotype ovigerous female and paratypes in the Australian Museum, Sydney.

Type locality.—Small Creek in upper reaches of Middle Harbour, Sydney, N.S.W. (17th December, 1944, E. F. Riek).

This subspecies can be distinguished on the shape of the rostrum with its fewer spinules. The series of specimens described above differs strikingly from that described by Roux (1926) from the same area, but it is similar to that from Parramatta described in the same paper. It is rather peculiar that specimens collected from Seven Hills close to Parramatta should have differed from those described by Roux from Parramatta and have been similar to those described as from Middle Harbour. It would seem that the labels of the material examined by Roux have become interchanged or that the two species of the Sydney area have a similar distribution.

***Paratya tasmaniensis*, sp. nov.**

(Figure 5.)

Rostrum extending well beyond the antennular peduncle and slightly beyond the antennal scale, gently curved downwards near its base and upwards at the tip, slender, its depth about one-seventh of its length, twenty to twenty-four spicules above, of which normally three lie behind the orbit, the distal spicules extending almost or quite to the tip and with seven to fourteen spicules below, but generally less than

ten. Stylocerite reaching only to the proximal end of the second antennular segment, distal spine of first segment quite short and blunt. Carpus of first chelipeds about twice as long as greatest width, slightly shorter than the chela, which has the fingers shorter than the palm. Carpus of second chelipeds about seven times as long as wide, very much longer than the chela which has the fingers longer than the palm. Dactyli of third and fourth pereopods about one-fifth of propodus, with six or seven evenly graduated spines, that of the fifth pereopods one-fourth of propodus with sixty or more spines. Telson with three pairs of dorsal spinules (including the subterminal pair) and with six terminal plumose spines of which the median are the longest. Eggs relatively very small, about 0.52 mm. long. Length ovigerous female 35 mm.

Types.—Holotype ovigerous female and paratypes in the Australian Museum, Sydney.

Type Locality.—Small stream at Kingston, Tasmania, just above the tidal zone. (10th January, 1947, E. F. Riek.)

Distribution.—Non-ovigerous specimens from the Clyde River at Bothwell, Tasmania, and from the Prosser River at Orford, Tasmania, are considered to belong to this species. The rostrum is somewhat shorter and straighter than in the type series.

The species has a rostrum similar to that of *australiensis* but differs in the shorter carpus of the first pereopods and spines of the dactyli as well as in the quite different egg-size.

Genus **Caridinides** Calman, 1926.

Genotype, *Caridinides wilkinsi* Calman, 1926.

Resembling *Caridina*, but having a well-developed exopod on the first pair of chelipeds. No supraorbital spine. Chelipeds of the *Caridina*-type, carpus of the first pair slightly excavated. An arthrobranch at the base of the first pereopods (nine pairs of gills). A number of spines on the exopod of the uropods.

Caridinides wilkinsi Calman, 1926.

Caridinides wilkinsi Calman, 1926, Ann. Mag. Nat. Hist., (9) 17: 242.

With the characters of the genus, which is monotypic.

Type Locality.—Olive River, Temple Bay, east coast of Cape York Peninsula.

Remarks.—The species has been collected only from slightly brackish water very close to the sea.

Genus **Caridina** Milne-Edwards, 1837.

No exopodite on any of the pereopods. Palmar portion of the chelae distinct and well developed. No supraorbital spine. An arthrobranch at the base of the first pereopods (nine pairs of gills). A number of spines on the exopod of the uropod.

There is quite extreme variation of the egg-size in the Australian species. For *serratirostris* the length is recorded as about 0.28 mm.; in *nilotica meridionalis* they are about 0.40 mm.; in *mccullochi* about 0.50 mm.; in *nilotica aruensis* about 0.65 mm.; in *indistincta indistincta* about 0.85 mm. to 0.95 mm. and the same for *thermophila*. The subspecies *indistincta sobrina* from Fraser Island has the largest eggs measuring up to 1.2 mm. In some samples from Fraser Island the eggs are no larger than the largest recorded for the typical form. Although the eggs in *thermophila* are of a size similar to those of *indistincta* the rostrum is quite distinct and the apical spines of the telson even more so.

The habitat of *thermophila* is quite remarkable. The specimens were taken from an artesian bore drain where they were simply swarming. The water emerging from the ground was too hot for normal life but after flowing for some distance it had cooled sufficiently to support life. The prawns were most abundant where the water was still too hot for comfortable wading. Only two of the many specimens collected were ovigerous, but the material was obtained in May and so rather too early for one to expect eggs, but it seems most likely that the species breeds in this hot water. A study of the distribution of this species would be most interesting for bores are artificial and of recent origin and not a high percentage are so hot. The eyes are well developed so the species is unlikely to be subterranean. Time did not permit a study of its distribution down the bore drain to the really cold waters but there was a decrease in the concentration of specimens as one proceeded downstream.

***Caridina typha* Milne-Edwards, 1837.**

Caridina typha Roux, 1926, Rec. Austr. Mus., 15: 246.

The rostrum is distinctive; in some individuals it reaches as far as the end of the basal segment of the antennular peduncle; in others it is slightly longer; in all specimens it is bent downwards and the upper border is devoid of teeth; the lower border has two to five teeth. The antennular bridge has a low but distinct carina. The epipodites are well developed at the base of the four anterior pairs of periopods. Length 24-25 mm.

Distribution.—In Queensland the species is recorded from Cooktown and from Dunk Island by Roux. No additional material has been examined.

***Caridina serratirostris* de Man, 1892.**

Caridina serratirostris de Man, 1892, Zool. Ergebn. Reise Nierld. Ind. II, 1892: 382; Roux, 1926, Rec. Austr. Mus., 15: 248.

Roux records this species from three poorly preserved specimens collected at Cairns. Additional material has not been examined.

The rostrum begins before the middle of the carapace and is turned downwards; it reaches hardly to the extremity of the second antennular segment. It is about five to six times as long as broad, and has on the upper border nineteen teeth, the proximal five or six of which are situated on the cephalothorax. On the inferior border there are three to six teeth. The eggs are small and numerous, they are 0.28 to 0.36 mm. long and 0.19 to 0.21 mm. broad; epipodites are present at the base of the four anterior pairs of periopods.

Distribution.—Cairns, Queensland.

The species occurred in association with *C. nilotica meridionalis* Roux.

***Caridina nilotica meridionalis* Roux, 1926.**

(Figure 6.)

Caridina wycki Ortmann, 1894, in Semons Zool. Forschungar Austr., 5: 11.

Caridina nilotica var. *meridionalis* Roux, 1926, Nova Caledonia, Zoologie, 4, (2): 207; Roux 1926, Rec. Austr. Mus., 15: 246.

Antennular bridge without keel, preorbital length of antennular peduncle being 0.8 mm. from the postorbital length of the cephalothorax. Rostrum mostly without teeth on the distal part of the upper border (one-third). This upper border has sixteen to twenty-two teeth, the first two of which are situated on the cephalothorax. On the

lower border there are thirteen to sixteen teeth, the distal ones of which are often very small. In these specimens the rostrum is very long; it reaches beyond the end of the antennular peduncle, and its extremity, turned upwards, reaches to the end of the scaphocerite. Carpus of the first periopod short, its breadth not quite half its length, shorter than the chela; second carpus somewhat longer than the chela, up to one and a half times. Uropodal spines ten to fifteen. Telson normally ending in a slight median projection and with three pairs of spines, of which the outer one is the longest, in addition to the pair of small subterminal spines. The eggs are small and numerous, being 0.36-0.39 mm. long and 0.21-0.23 mm. broad, though sometimes a little larger.

Distribution.—The subspecies was described originally from New Caledonia. Queensland distribution: Creek at Cooktown; Cairns; Eidsvold; Burnett River.

New Distribution Records.—Cairns; Black River; Townsville; George Creek, between Coen and Annie River.

***Caridina nilotica aruensis* Roux, 1919.**

(Figure 7.)

Caridina nilotica var. *aruensis* Roux, 1919, *Abhandl. Senckenb. Gesell. Frankfurt*, 35: 321; Roux, 1926, *Rec. Austr. Mus.*, 15: 248.

The rostrum has the typical form and reaches to the end of the scaphocerite; its distal part is slightly turned upwards. The upper border bears a proximal series of twenty-one to twenty-three teeth, the first two or three of which are situated on the carapace. One or two apical teeth are separated from the long proximal series by a short space devoid of teeth. The lower border carries nine to fourteen teeth. Carpus of first periopod short, not half as wide as long, shorter than chela; second carpus from one and a quarter to one and a half times as long as chela. Uropodal spines ten to twelve. Telson normal, as in *meridionalis* but the median projection smaller. The eggs are few in number and rather large. They are 0.64 mm. long and 0.39 mm. broad; very different in size from those of the preceding subspecies of the same species.

Distribution.—Aru Islands. Queensland distribution.—40 miles S.W. of Townsville.

New Distribution Records.—Charters Towers; Burdekin River, Macrossan; Townsville; Mary River at Conondale.

***Caridina mccullochi* Roux, 1926.**

Caridina mccullochi Roux, 1926, *Rec. Austr. Mus.*, 15: 249.

Antennular bridge devoid of a keel. Rostrum rather long, generally reaching to the end of the scaphocerite or a little longer, at first slightly bent downwards before the orbit and afterwards directed horizontally, length seven times the breadth, upper border carrying numerous teeth which occupy the whole length, but vary in size, proximal series comprises small, regularly spaced teeth while the distal ones are bigger, more inclined, and further separated from one another. Teeth above vary from twenty-five to thirty-two, the first three of which are situated on the cephalothorax and the next twenty-two to twenty-five form the proximal series; the distal teeth vary in number. The lower border has seven to ten teeth.

Carpus of first periopod relatively long, distal excavation shallow, chela a little longer than the carpus. Carpus of second periopods more elongated, about six times as long as greatest width. Dactyli of third and fourth periopods with nine to ten spines, the terminal one included, the fifth with fifty-five to fifty-seven spines. Uropodal spines twelve to fourteen. Telson ending in four pairs of spines of the same length. Eggs small and numerous, about 0.50 mm. long.

Types.—In the Australian Museum, Sydney.

Type Locality.—Pallal, Horton River, near Bingara, N.S.W. (A.R. McCulloch, 1909).

Roux also records the species from Port Macquarie and from North Yanco, Narrandera, N.S.W.

The species is recognizable at once on the peculiar rostral structure where the distal spines of the upper surface are larger than the more basal ones.

***Caridina indistincta* Calman, 1926.**

(Figure 8.)

Caridina indistincta Calman, 1926, Ann. Mag. Nat. Hist., (9) 17: 244.

Rostrum extending slightly beyond the antennular peduncle, gently curved downwards at the base and upwards at the tip, slender, its depth not more than one-eighth of its length; twenty to thirty-two spinules above, of which one to four are behind the orbit, the distal ones extending almost or quite to the tip, and four to eight teeth below. Stylocerite reaching about the middle of the first antennular segment, distal spine not reaching the middle of second, which is not quite two-thirds of the first, third segment more than half as long as second. Antennular scale about equal to rostrum; angle of second segment spiniform. Carpus of first chelipeds about three times as long as wide, and shorter than the chela, which has the fingers longer than the palm. Carpus of second chelipeds about five to six times as long as wide, longer by one-quarter than the chela, which has the fingers longer than the palm. Dactylus of third and fourth periopods less than one-third of propodus, with nine to thirteen, usually ten, evenly graduated spines; that of fifth periopods one-third of propodus, with thirty-seven to forty-three spines. Merus of third and fourth pairs with three spines, that of fifth with two. Uropodal spines nine to eleven. Telson with five or six pairs of dorsal spinules (including subterminal pair) and with six terminal spines, of which the outer pair are longer and stronger than the others. Telson medianly produced into a distinct projection between the terminal spines. Eggs very large and relatively few in number, length varying from 0.85 to 0.95 mm. Length ovigerous female 30 mm.

Type Locality.—St. George District, Queensland.

Distribution.—Widespread in south Queensland localities including Brisbane, Moreton Island, Caloundra, Caboolture, Rosewood and Conondale.

The species was described originally from a series of eight specimens collected in bore drainwater, but has since been found in isolated ponds and creeks.

At Brisbane ovigerous females are taken from the end of August to the end of November or early December, those of August, September and October often being freshly laid. During other months of the year ovigerous females have not been collected except for a single specimen in May which occurred with abundant non-ovigerous specimens.

One normally collects very juvenile specimens in November with increasing size in December. These seem to become about half grown by the winter though there may be some smaller specimens. The species seems to take two years to reach maturity but this has not been confirmed by breeding.

***Caridina indistincta sobrina*, nov.**

(Figure 9.)

This subspecies differs from the typical form in the shape and structure of the periopods. Carpus of first periopods more excavate. Dactylus of third and fourth

periopods with seven to ten spines, that of the fifth with from twenty to thirty-two. Telson with four or five pairs of dorsal spinules and with six terminal spines, but the telson only very slightly produced medianly and the middle spines rather short. Eggs somewhat larger than in the typical form, length 0.95 to 1.2 mm. Length ovigerous female 16-20 mm.

Types.—Holotype ovigerous female and paratypes in the Australian Museum, Sydney.

Type Locality.—Rocky Creek, Fraser Island, Queensland (August, 1941, E. F. Riek).

Distribution.—Lakes and streams of Fraser Island.

The subspecies can be distinguished by the somewhat larger eggs and the fewer spines on the dactyli of the legs.

***Caridina thermophila*, sp. nov.**

(Figure 10.)

The rostrum is comparatively short, hardly reaching to the extremity of the antennular peduncle. It is about five to six times as long as broad, and has on the upper border twenty to twenty-four teeth of which the first one to four are situated behind the orbit. Spines decrease in size towards the apex and there become widely spaced so that the apex appears more or less without spines. On the lower border there are four to six teeth. Carpus of first periopods not two times as long as wide and shorter than the chela, which has the fingers longer than the palm. Carpus of second cheliped about four to five times as long as wide, only about one and a quarter times as long as chela. Dactylus of third and fourth periopods less than one-third of propodus and with from eight to eleven spines, that of fifth periopods one-third of propodus and with from forty-five to forty-nine spines. Merus of third and fourth pairs with three spines, that of fifth with two or three. Uropodal spines fifteen to seventeen. Telson with five or six pairs of dorsal spinules (including subterminal pair), and with eight terminal spines of which the median are the largest with the rest decreasing in size laterally. Epipodites well developed at the base of the four anterior pairs of periopods. Eggs large and very few in number. The two ovigerous females examined each had only from about twelve to twenty eggs; length 0.85 mm., breadth 0.53 mm. Length ovigerous female 15 mm.

Types.—Holotype ovigerous female and paratypes in the Australian Museum, Sydney.

Type Locality.—Muttaborra, western Queensland (27th May, 1945, E. F. Riek).

Distribution.—The species is known only from the type locality.

The extensive series of specimens described above was collected from a bore drain where the water was quite hot and unpleasant to stand in for any considerable time.

There is one very interesting specimen in this series. In this example the first periopod of the left side is provided with an exopodite whereas the right side is without one. This condition approaches that which is normal for the genus *Caridinides* where both first periopods are provided with exopodites.

This species differs from *indistincta* in its much smaller size and quite different structure of the rostrum, with the apex above devoid of spines and below with only a few spines. In *indistincta* the spines above occur right to the apex and there are many below. The terminal spines of the telson are very different and the uropodal spines in *thermophila* are more numerous than usual.

Caridina gracilirostris de Man, 1892.

(Figure 11.)

Caridina gracilirostris de Man, 1892, Zool. Ergebn., 2:399; Blanco 1935, Philipp. Journ. Sci., 56:32.

A single mature specimen from Cairns is described. Rostrum extremely long, extending at least as far again as the antennal scale; upper margin armed with eight large, widely spaced spines over the basal half, apical half without spines except for the sub-apical one; lower margin with a complete series of twenty-seven spines decreasing gradually in size towards the apex where there is a slight break before the subterminal spine.

Carpus of first periopod one and three-quarter times as long as wide, much shorter than chela, second carpus only very slightly longer than chela, about four times as long as wide. Dactyli of third and fourth periopods with seven spines and fifth with about thirty-five spines. Uropods each with seven to nine spines. Telson with four terminal spines, in addition to the subterminal pair, with the inner spines smaller than the outer. Length of specimen, 35 mm.

This is the first record of this Asiatic species from Australia. There is a single specimen taken from a tidal creek at Cairns, north Queensland (15th August, 1942, I.S.R. Munro). The species was taken associated with *Caridina nilotica meridionalis* Roux.

The species cannot be confused with any other species recorded from Australia because of the very large rostrum but also because of the shortened second carpus.

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