

# AUSTRALIAN MUSEUM SCIENTIFIC PUBLICATIONS

Riek, E. F., 1951. The Australian freshwater crabs (Potamonidae). *Records of the Australian Museum* 22(4): 351–357. [30 June 1951].

doi:10.3853/j.0067-1975.22.1951.613

ISSN 0067-1975

Published by the Australian Museum, Sydney

nature culture **discover**

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# THE AUSTRALIAN FRESHWATER CRABS (POTAMONIDAE).

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(Figures 1-7.)

Freshwater crabs of this family are common in the inland and northern portions of Australia, but are unknown from the south-east and south-west coastal areas. Most of the recorded species were described from specimens collected in Cape York. Only one species, *Paratelphusa leichardti* (Miers), is widespread in inland areas. It causes some damage to bore-drains as the burrows of the specimens increase seepage from the drains and so cut down the flow.

## Family POTAMONIDAE.

The family is generally subdivided on the structure of the mandibular palp, though some authors recognize more than two subfamilies.

- 1. Terminal segment of the mandibular palp deeply cleft into two lobes, one dorsal and one ventral .....subfamily GECARCINUCINAE
- Terminal segment of the mandibular palp not deeply cleft into two lobes .....subfamily POTAMONINAE

## Subfamily POTAMONINAE.

There is no authentic record of a species of this subfamily from the Australian mainland although the generic name *Geotelphusa* was applied to some Australian species by one early author.

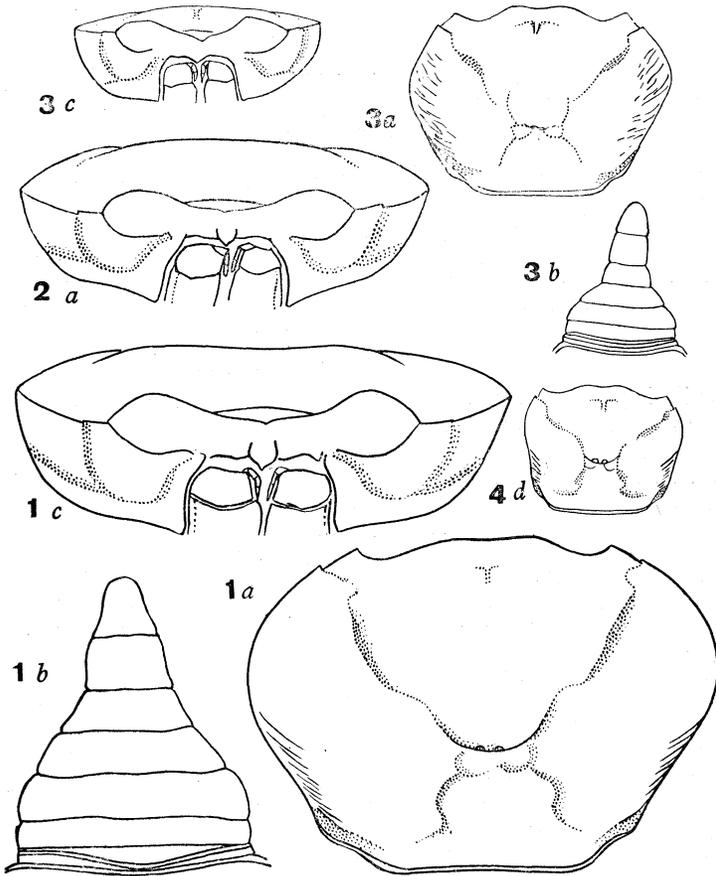
## Subfamily GECARCINUCINAE.

Mandibular palp divided into two lobes, a dorsal and a ventral. The dorsal lobe is falciform and lies behind the incisor process of the mandible; the ventral lobe, which is a broad oval plate, more or less covers the exposed surface of the incisor process. Very commonly the abdomen of the adult male is broad at the base and suddenly narrowed at the fifth and sixth segments, but whether this is so or not, the length of the sixth segment is hardly ever less than (often exceeds) its minimum breadth, and the seventh segment (telson) is elongate triangular or tongue-shaped, not broadly triangular.

### Key to Genera and Subgenera of the Subfamily GECARCINUCINAE.

- 1. Front in adult less than one and one-half times as wide as orbit ..... 2
- Front in adult usually much wider than, never less than one and two-thirds as wide as orbit ..... 3
- 2. Lower, outer corner of orbit produced into a sort of gutter ..... *Gecarcinucus* (India)
- Orbits normal ..... *Cylindrotelphusa* (India and New Guinea)
- 3. Upper border of merus of chelipeds with a subterminal spine .....\*
- Upper border without subterminal spine ..... 5
- 4. Post-orbital crests prominent ..... Subgenus *Paratelphusa*\* (Asia, Africa, Malaya)
- Post-orbital crests faint or obsolete ..... *Peritelphusa* (Malaya)
- 5. Post-orbital crests prominent ..... 6
- Post-orbital crests low, indistinct ..... 8
- 6. Epigastric and post-orbital portions of crest either continuous or almost in line ..... *Barytelphusa*\* (Asia, Malaya)
- Epigastric portion in advance of and slightly overlapping post-orbital portion of crest ..... 7
- 7. Exopodite of external maxillipeds strongly flagellate ..... *Oziotelphusa*\* (Asia)
- Flagellum of exopodite of external maxillipeds vestigial or absent ..... *Phricotelphusa*\* (Asia)
- 8. Exopodite of external maxillipeds flagellate ..... *Liotelphusa*\* (Asia, Malaya, Australia)
- Exopodite of external maxillipeds non-flagellate ..... *Globitelphusa*\* (Asia)

\* Subgenera of *Paratelphusa*.



Figures 1-4.

1. *Paratelphusa (Liotelphusa) leichardti*, Lawn Hill Creek, Northern Territory. 2. *Paratelphusa (Liotelphusa) leichardti*, Longreach, Queensland. 3. *Paratelphusa (Liotelphusa) plana*. 4. *Paratelphusa (Liotelphusa) planifrons*.  
 (a) Male cephalothorax. (b) Male abdomen. (c) Frontal view. (d) Juvenile cephalothorax. Approximately  $\times 1\frac{1}{2}$  diameters.

Genus **Paratelphusa** Milne Edwards 1853.

In this genus it is unusual for the abdomen of the adult male to be regularly triangular; it is far more usual for its distal half to be narrowed, the narrowing beginning suddenly at the fifth or sixth segment. Whether this contraction is marked or not, the sixth segment is never broad, its length almost always being equal to and not unseldom exceeding its distal breadth; and the telson is never broadly triangular but is broadly semi-elliptical or tongue-shaped, or at least, elongate. The mandibular palp is of a peculiar pattern, the first two joints are not separately distinguishable, they certainly have no movement independent of one another, and the terminal joint is divided, from the base, into two lobes, one dorsal and the other ventral.

Subgenus **Liotelphusa**.

This subgenus is not sharply defined and it grades into *Phricotelphusa*, although the extremes are very distinct.

Antero-lateral borders of the carapace not spinose; epigastric and post-orbital crests obscure; lateral epibranchial spine small or minute; the exopodite of the external maxillipeds usually with a long, strong, plumose flagellum; the cervical groove distinctly cut only where it defines the mesogastric area posteriorly; species usually small. There are five Australian species of the subgenus.

**Paratelphusa (Liotelphusa) leichardti** (Miers), 1884.

(Figures 1-2.)

*Telphusa leichardti* Miers, 1884, Zool. Alert., 236.

*Telphusa transversa* Spencer, 1896, Horn Exped., II. Zool., 245.

*Geotelphusa leichardti* McCulloch, 1917, Rec. Aust. Mus., xi, 232.

*Paratelphusa transversa* Hale, 1927, Flora Fauna S. Austr., Crustacea, i, 154.

*Diagnosis.*—Lateral margins of the front divergent backwards; fronto-orbital breadth less than the length of the cephalothorax; penultimate leg much less than twice as long as the cephalothorax; post-frontal elevations obsolete or absent, branchial regions almost or quite smooth anteriorly.

*Description.*—A full description of this species is given by McCulloch (1917).

*Type Locality.*—South-west Queensland.

*Distribution.*—Inland and northern Australia including localities in South Australia, New South Wales, western Queensland (as far north and east as Hughenden and Charters Towers), Northern Territory (Darwin and Lawn Hill Creek) and Western Australia (King Sound).

This species can be separated into two well-defined forms: the typical form occurring in the southern part of the range, the inland streams of western Queensland and reaching towards the coast at Charters Towers; and the northern form occurring at Lawn Hill Creek and Darwin, Northern Territory, and at King Sound, Western Australia. Both the forms are figured. This common, wide-ranged species is not known from Cape York. The species is most closely allied to *transversa* (von Martens), which replaces it in Cape York.

**Paratelphusa (Liotelphusa) plana** (McCulloch), 1917.

(Figure 3.)

*Geotelphusa leichardti* var. *plana* McCulloch, 1917, Rec. Aust. Mus., xi, 236.

*Description of Adult.*—Carapace broadly oval, deep, length about three-quarters of the greatest breadth, depth less than half the length; upper surface relatively smooth, except for fine, oblique striae on the dorsal surface near the lateral borders of the epibranchial region. The striae are much more noticeable in juvenile specimens. Cervical groove rather strongly impressed for this subgenus, more prominent in the posterior mesogastric area and there quite deep, running towards the lateral epibranchial tooth, quite deeply impressed for the middle third of this portion; regions of the carapace thus fairly well defined; anterior border of the mesogastric area, however, not well defined except at the groove separating the epigastric crests; epibranchial region little, if at all, swollen; front about one-quarter of the greatest breadth of the carapace, slightly deflexed, smooth-edged and with the free edge almost straight; outer orbital angle sub-acute, not separated from the lower border of the orbit by a gap; antero-lateral border of the carapace well defined, strongly convexed; epigastric and post-orbital crests ill-defined, epigastric crest regions separated medianly by a very faint groove; abdomen of male tapering rather abruptly to the fifth and sixth segments; sixth segment with straight sides, almost as long as wide at its distal end; telson not quite as long as its proximal width, apex rounded; external maxillipeds with the exopodite longer than the ischium and bearing a strong, plumose flagellum; ischium longitudinally grooved, merus quadrangular and broader than long. Length of holotype, 23 mm., breadth, 30.5 mm.

*Types*.—Holotype male, allotype female and paratype (No. P.4110-P.4112) in the Australian Museum Collection.

*Type Locality*.—Eureka Creek, Walsh River, Cape York.

*Distribution*.—Walsh River and Cooktown, north Queensland.

In the holotype the oblique striae on the dorsal surface near the lateral borders of the epibranchial region are faint but still distinguishable. They are more prominent in the specimens examined from Cooktown. The species is distinguishable from *leichardti* on the form of the carapace and in the development of the oblique striae on the dorsal surface near the lateral borders of the epibranchial regions in *plana* which are absent in *leichardti*. The male abdomen also is different in the two species.

***Paratelphusa (Liotelphusa) planifrons* (Bürger), 1894.**

(Figure 4.)

*Telphusa planifrons* Bürger, 1894, Zool. Jahrb. Syst., viii, 6.

*Diagnosis*.—Lateral margins of front parallel; fronto-orbital breadth equal to the length of the cephalothorax; breadth only slightly greater than the length.

Length of cephalothorax, 17 mm., breadth, 23 mm.

*Distribution*.—Cape York; Walsh River, north Queensland (10 May, 1925, W. D. Campbell); Mutchilba, Chillagoe Line, north Queensland (W. D. Campbell).

Only three very juvenile specimens (width, 15 mm.) referred to this species have been examined. However, the species can be distinguished readily from *plana* and the other species on its shape. In *planifrons* the lateral margins tend to be parallel so that the carapace has a squarish appearance, the width being only slightly greater than the length.

***Paratelphusa (Liotelphusa) transversa* (von Martens), 1869.**

(Figure 5.)

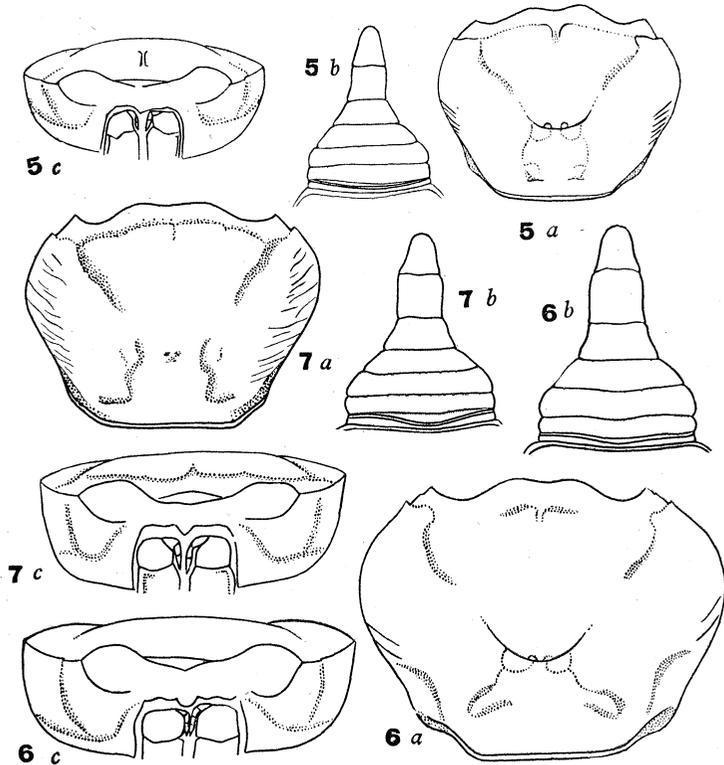
*Telphusa transversa* von Martens, 1869, Monats. Ak. wiss. Berlin, 609; Bürger, 1894, Zool. Jahrb. Syst., viii, 4.

*Telphusa crassa* Milne Edwards, 1869, Nouv. Arch. Mus. Paris, v, 177.

*Diagnosis*.—Carapace strongly convex from in front behind; upper surface smooth; epibranchial spine very reduced so that the antero-lateral borders appear almost entire; post-frontal crests absent.

A single male specimen from Mapoon, Batavia River (Australian Museum Collection, No. G.4219) is referred to this species. The proportions of the carapace do not correspond exactly with those given for the type specimen, but then this specimen is smaller.

*Description of Specimen G.4219*.—Carapace oval, almost circular in outline, deep, its length about three-fourths of its greatest breadth, depth greater than half its length; upper surface relatively smooth, without striae on the dorso-lateral portions of the epibranchial region; cervical groove deeply impressed only in the posterior mesogastric area, running towards the lateral epibranchial tooth, prominent only over the middle third of this portion; anterior border of the mesogastric area not well-defined except at the groove separating the epigastric crests; front about one-quarter the greatest breadth of the carapace, strongly deflexed, smooth-edged, with the free edge strongly emarginate in the middle; antero-lateral borders of the carapace well-defined, tending towards being parallel; epigastric and post-orbital crests, though ill-defined, forming a continuous line; abdomen of male tapering rather abruptly to the fifth and sixth segments; sixth segment with almost straight sides, as long as wide at its distal end; telson as long as its proximal width, apex rounded.



Figures 5-7.

5. *Paratelphusa (Liotelphusa) transversa*. 6. *Paratelphusa (Liotelphusa) valentula*, sp. nov. 7. *Paratelphusa (Barytelphusa) angustifrons*.  
 (a) Male cephalothorax. (b) Male abdomen. (c) Frontal view. Approximately  $\times 1\frac{1}{2}$  diameters.

Breadth of carapace, 26 mm., length, 21 mm.

*Type Locality*.—Cape York, north Queensland.

*Distribution*.—Cape York; Mapoon, Batavia River, Cape York (August, 1903, C. Hedley).

The species is much deeper than *plana* and the upper surface much more strongly arched. The much more strongly arched surface and strongly deflexed front, as well as slight differences in the shape of the male abdomen differentiate this species from *leichardtii*.

***Paratelphusa (Liotelphusa) valentula*, sp. nov.**

(Figure 6.)

*Description of Adult*.—Carapace squarish, length more than three-quarters of the greatest breadth, depth less than half the length; dorsal surface smooth or with very fine striae on the epibranchial regions; cervical groove deeply impressed only where it borders the posterior mesogastric area, running towards the lateral epibranchial tooth, clearly defined only in the middle third of this portion; epibranchial regions greatly swollen; front about one-quarter the greatest breadth of the carapace, slightly deflexed, smooth-edged, with the free edge slightly excavated; outer orbital angle sub-acute, not separated from the lower border of the orbit by a gap; epigastric and post-orbital crests

ill-defined; epibranchial spine prominent; abdomen of male tapering rather abruptly to the fifth and sixth segments; sixth segment with almost straight sides, slightly longer than the width at the distal end; fifth segment approaching in length its minimum breadth so that the abdomen is markedly constricted at the fifth segment; telson slightly longer than its proximal width, apex rounded.

Length of holotype male, 27 mm., breadth, 34 mm.

*Types*.—Holotype male (No. P.11982), allotype female (No. P.11983), and paratypes in the Australian Museum Collection.

*Type Locality*.—Coen, north Queensland.

*Distribution*.—Coen (Jan., 1943, Wassell); Coen River at Coen (June, 1949, R. Mackay).

This species is quite distinct from any of the other Cape York species. It is characterized by the swollen epibranchial regions. The male abdomen also is most distinctive.

#### Genus *Paratelphusa*.

Subgenus *Barytelphusa* Alcock.

No spine on the upper border of the merus of the chelipeds, antero-lateral border of the carapace crenulate or not, but never bearing a series of large teeth or spines; epigastric crests either united with the post-orbital crests to form one unbroken ridge on either side of the post-frontal mesogastric groove, or, if the epigastric crests are separated from the post-orbital crests, the break between them is vague and sometimes very indistinct and both crests form one common curve; exopodite of the external maxillipeds with a long, strong, plumose flagellum; cervical groove usually very broadly and deeply impressed in all its course, usually running to, or towards, the lateral epibranchial spine. The species are generally large and dark-brown in colour.

#### *Paratelphusa (Barytelphusa) angustifrons* (Milne Edwards), 1868.

(Figure 7.)

*Telphusa angustifrons* Milne Edwards, 1868, Bull. Soc. ent. Fr.; Milne Edwards 1869, Nouv. Arch. Mus. Paris, v, 171.

*Geotelphusa angustifrons* McCulloch, 1917, Rec. Aust. Mus., xi, 232.

*Paratelphusa (Liotelphusa) podenzanae* Colosi, 1919, Boll. Soc. Ent. Ital., l, 54.

*Diagnosis*.—Lateral margins of the front divergent backwards, fronto-orbital breadth less than the length of the carapace; pronounced post-frontal elevations extending between the epibranchial teeth; branchial regions markedly rugose, both anteriorly and posteriorly.

*Description of Adult*.—Carapace slightly arched, the three main divisions distinct, length about four-fifths the greatest breadth, the depth more than half the length; lateral half of each epibranchial region traversed by a number of fine oblique ridges becoming somewhat effaced in very large specimens; cervical groove distinct except for the region behind the post-orbital crests, the groove running to the lateral epibranchial tooth; mesogastric furrow deep; front one-quarter the greatest breadth of the carapace, little deflexed, margin entire, with sides convergent forward; external orbital tooth subacute, meeting the lower border of the orbit without a notch; antero-lateral margin of the carapace well-defined, very obscurely crenulate; epibranchial tooth small and blunt; epigastric crests broad, blunt, almost parallel to the front, outer ends incompletely separated from the post-orbital crests by a very vague break; post-orbital crests rounded, most clearly defined over their outer halves, running slightly backwards and then with a distinct forward bend from the region of the cervical suture to join the lateral margin

at the epibranchial tooth; male abdomen broad based, distally strongly contracted with broadly rounded apex, contraction of the sixth segment pronounced, segment just as long as broad at its distal end; telson broadly rounded, as long as broad proximally.

Length of normal carapace, 23 mm., breadth, 28 mm.

*Distribution*.—Cape York (type locality); Paira, near Somerset, Cape York (Hedley and McCulloch).

The type locality of *podenzanae* Colosi is also Cape York.

The species can be distinguished from all other recorded Australian species by the relatively strong development of the epigastric and post-orbital crests. The species differs from typical members of the subgenus in the relatively poor development of the cervical groove, the lateral portions of which are broken in the middle. The condition found in this species is very similar to that which occurs in the subgenus *Oziotelphusa* but the epigastric and post-orbital crests, though not as prominent as in most species of the subgenus *Barytelphusa*, are definitely in line. Colosi, after stating that this species would fall in the subgenus *Barytelphusa*, as defined by Alcock, placed it in *Liotelphusa* without any further explanation.

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