

***Metatiron bonaerensis*, a new species (Crustacea: Amphipoda:  
Synopiidae) from the southwest Atlantic**

Gloria M. Alonso de Pina

Museo Argentino de Ciencias Naturales "Bernardino Rivadavia," División Invertebrados,  
Avda. Angel Gallardo 470, (1405) Buenos Aires, Argentina

*Abstract.*—A new species, *Metatiron bonaerensis*, is described and illustrated from the south of Buenos Aires province, Argentine continental shelf, southwest Atlantic. The new species is assigned to *Metatiron* based on the absence of mandibular palp. *M. bonaerensis* is separated from *Tiron tropakis* by the laterally smooth pleonites 1–3, protuberant forehead, quadrate coxa 7 and maxilla 1 inner plate shape. The relationship with other species of the genus is discussed. The material was dredged at different depths and the grain size of the sediment was determined for each sampling station.

The new species described here was discovered from the El Rincón area of the Argentine continental shelf (Buenos Aires province), approximately 39° to 40°S and 61° to 62°W. Benthic samples were collected using a Van Veen dredge during the survey carried out by the R/V *El Austral* in 1993.

The type specimens are deposited in the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia," Buenos Aires, Argentina (MACN).

*Metatiron* Rabindranath, 1972

*Metatiron bonaerensis*, new species

Figs. 1–49

*Holotype.*—Male 6.75 mm (MACN 34004), El Rincón, Buenos Aires: 39°39'40"S, 61°50'01"W (sta 24); depth 15 m; 2 Nov 1993.

*Allotype.*—Ovigerous female 9.6 mm (MACN 34005), El Rincón, Buenos Aires: 39°25'10"S, 61°34'57"W (sta 19); depth 18 m; 69% fine sand; 3 Nov 1993.

*Paratypes.*—1 male ca. 5.0 mm, 1 juvenile ca. 2.0 mm (MACN 34006), El Rincón, Buenos Aires: 39°05'36"S, 61°20'11"W (sta 3); depth 9.5 m; 78% medium sand; 3 Nov 1993. 1 ovigerous female 6.0 mm (MACN

34007), El Rincón, Buenos Aires: 39°20'08"S, 61°25'02"W (sta 15); depth 19 m; 69% fine sand; 3 Nov 1993. 1 immature female ca. 4.0 mm (MACN 34008), El Rincón, Buenos Aires: 39°30'07"S, 61°34'58"W (sta 22); depth 18 m; 75% fine sand; 3 Nov 1993. 1 female with oostegites ca. 6.0 mm, 1 immature male 6.0 mm (MACN 34009), same data as holotype. 1 ovigerous female 5.8 mm (MACN 34010), El Rincón, Buenos Aires: 39°40'07"S, 61°35'05"W (sta 25); depth 19 m; 67% fine sand; 2 Nov 1993.

*Description.*—Male holotype, body length 6.75 mm. Head about as long as first 3 peraeonites combined; forehead protuberant, dorsal margin forming right angle anteriorly; rostrum short, pointing acutely over base of antenna 1; lateral cephalic lobe moderately produced. Eyes well-developed, of medium size; accessory eye composed of 2 separated ommatidia (Fig. 1). Antenna 1 somewhat shorter than peduncle of antenna 2; peduncle article 1 broad, longer than peduncle articles 2 and 3 combined, with single distal spine anteriorly, which is as long as peduncle article 2; peduncle article 2 about one-third as long as peduncle article 1; peduncle article 3 shorter than article 2, almost one-half the length of this latter; fla-

gellum with 9 articles, article 1 elongate about one-third the length of flagellum, bearing fringe of setae; accessory flagellum with 6 articles, slightly longer than flagellum articles 1 and 2 combined (Fig. 2). Antenna 2 elongate, about as long as the body; peduncle articles with fine setae anteriorly; peduncle articles 4 and 5 very long, subequal in length; flagellum with 17 articles (Fig. 3). Upper lip and epistome as figured (Fig. 4). Mandible without palp; incisor with 4 teeth on right mandible and 2 more accessory teeth on the left; molar prominent, columnar, with triturating surface and plumose setae; lacinia mobilis large and dentate; spine row consisting of 6 spines subequally elongate on right mandible and 7 spines on the left mandible, being one of them shorter than the other ones (Figs. 5–7). Lower lip with well-developed mandibular lobes, inner lobes present and separate from each other (Fig. 8). Maxilla 1, inner plate fully setose, bearing 3 setae at the apex separated from the rest of medial setae by a smooth acclivity (Fig. 9); outer plate with 7 apical spines (Fig. 10); palp carrying 7 terminal tooth-spines and 4 subterminal setae (Fig. 11). Maxilla 2, inner plate broader than outer with dense medial and submarginal setal row (Fig. 12). Maxilliped as illustrated (Fig. 13).

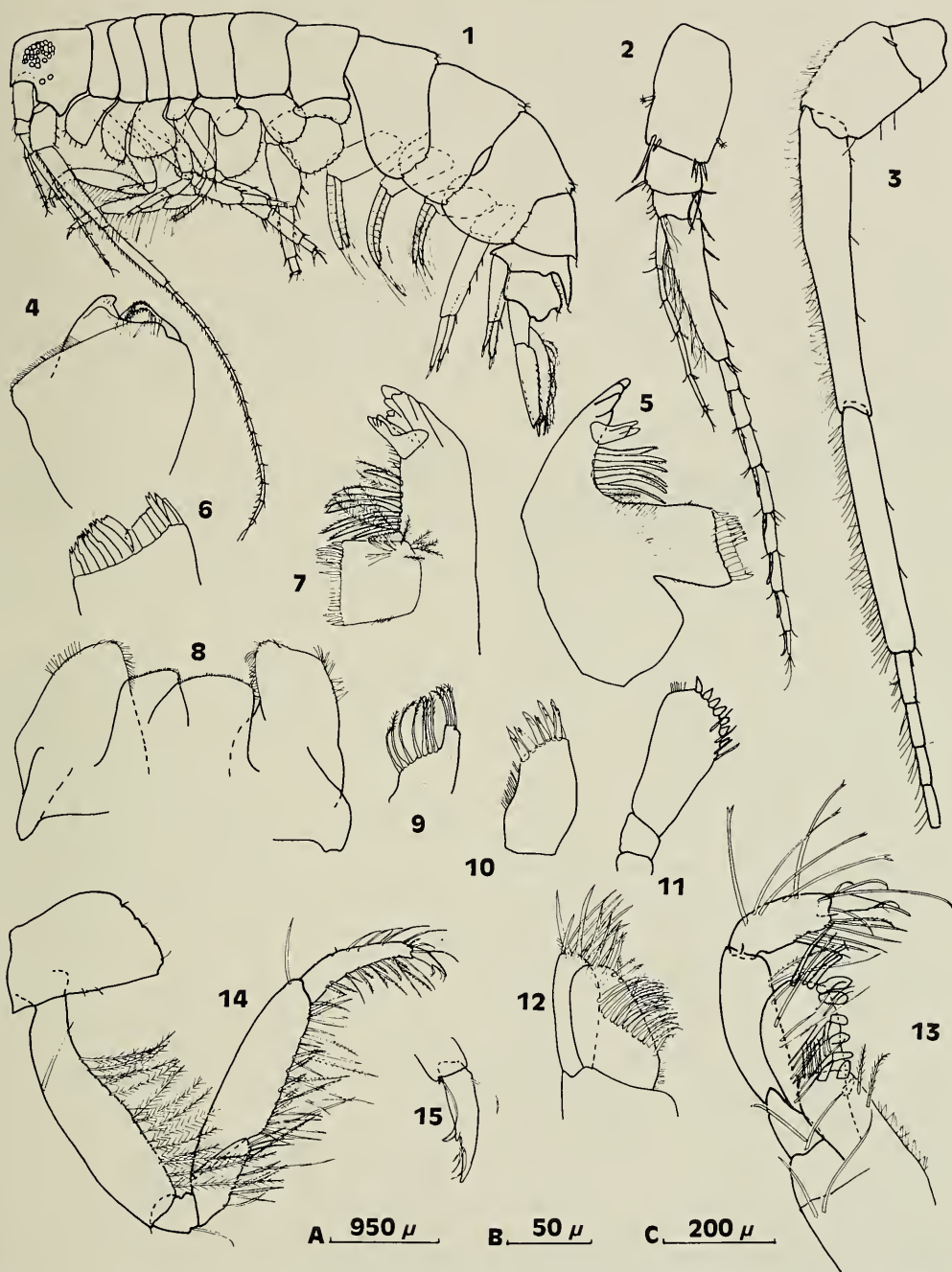
Gnathopods 1 and 2 similar, simple; propodus thin, about 0.5 length of carpus, posterior margin with pectinate spines; dactylus bearing inner tooth. Gnathopod 1, coxa distally expanded; basis shorter than the next 3 articles combined, slightly broader medially, with long plumose setae along anterior margin; carpus elongate, posterior margin with pectinate spines (Figs. 14, 15). Gnathopod 2, coxa narrow; basis about as long as the next 3 articles combined, almost straight, with long plumose setae on distal half of anterior margin and along posterior margin; carpus elongate, posterior margin armed with spines and long plumose setae (Figs. 16, 17). Peraeopods 3–7, propodus short and broad; dactylus stubby and bearing an inner tooth. Peraeopods 3 and 4

small (Figs. 18–21), similar except for coxa; coxa of peraeopod 3 large, distally expanded and posteriorly with a lobe; coxa of peraeopod 4 small, short and broad; dactylus of both appendages imbedded in end of propodus, forming a subspherical disk with hooked tooth, a long seta matching curve of hook, and an accessory small spine at base of hook. Peraeopods 5 and 6 similar; coxa with posterior lobe; basis ovate, longer than wide, with distal posterior lobe (Figs. 22–25). Peraeopod 7, coxa nearly oval; basis broader than long, almost quadrate, weakly crenellate posteriorly; merus broader than on peraeopods 5 and 6 (Figs. 26, 27). Peraeopods 5–7, dactylus not spherical basally and only hooked distally.

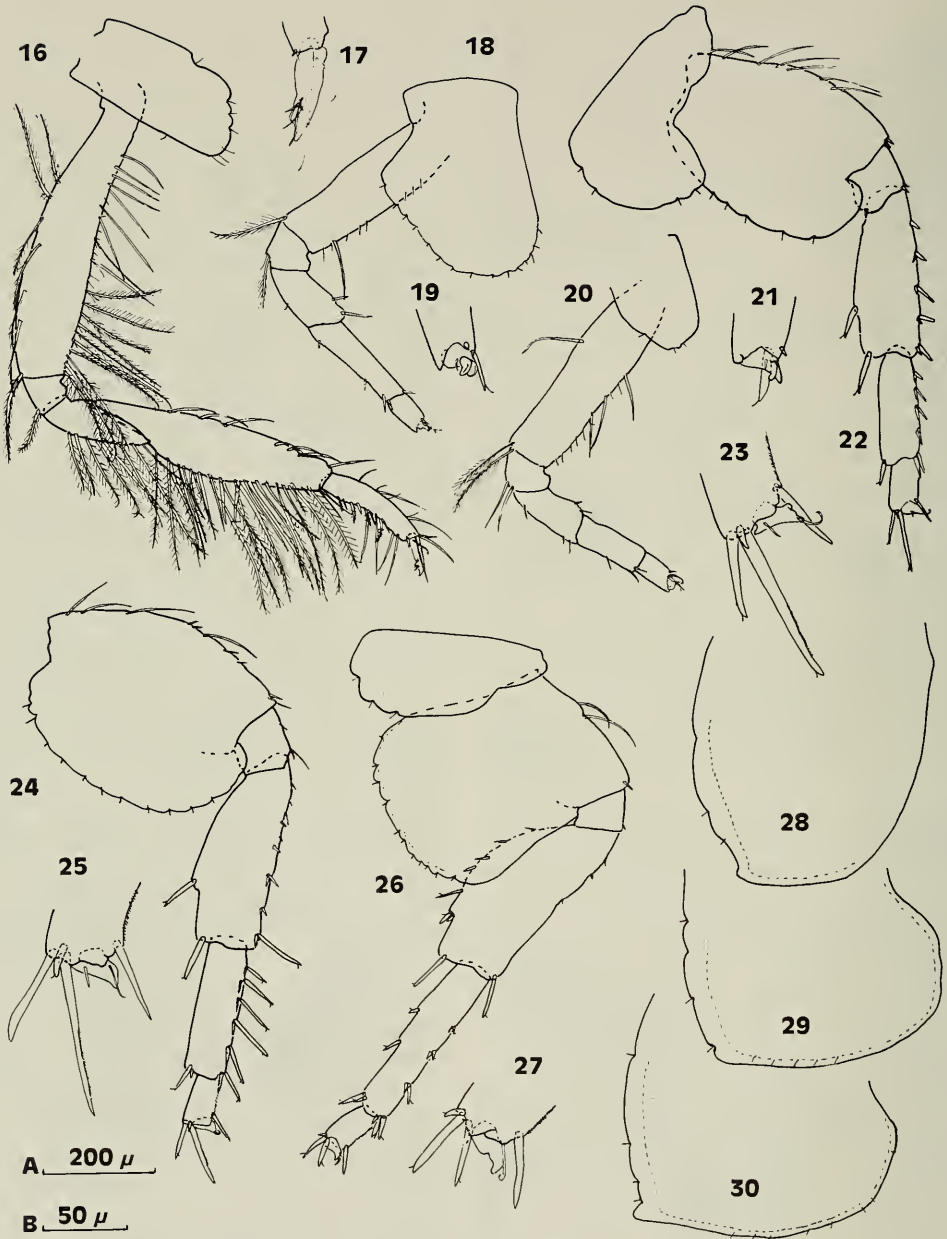
Pleonal epimera 1–3, posteroventral corners slightly produced, posterior margins bearing some notches with setules (Figs. 28–30). Pleonites 1–3 crenellate posteriorly on dorsal edge, crenellations superimposed, almost indistinguishable, small and rounded; lateral segmental margins evenly smooth (Fig. 31).

Urosomites 1 and 2 with medium and large dorsal teeth, respectively; urosomite 3 with dorsal hump. Uropod 1 elongate, peduncle much longer than rami; rami subequal in length (Figs. 32, 33). Uropod 2 shorter than uropod 1, peduncle slightly longer than inner ramus; outer ramus shorter than inner ramus (Figs. 34, 35). Uropod 3, peduncle broad and short; rami subequal in length, elongate, apically obliquely truncate (Figs. 36, 37). Telson long and slender, cleft almost to base, with short dorsal spines sparsely distributed in medial row and 1 terminal longer spine on each lobe (Figs. 38, 39).

Allotype, ovigerous female, body length 9.6 mm. Similar to holotype, but differs from it as follows. Eyes smaller (Fig. 40). Antenna 1, peduncle articles 1–3 longer; flagellum article 1 short (Fig. 41). Antenna 2 much shorter. Mandibles, spine row bearing 9 spines. Maxilla 1, inner lobe with more numerous medial setae (Fig. 42). Maxilliped as that of holotype: inner plate



Figs. 1–15. *Metatiron bonaerensis*, new species. Holotype, adult male. 1, Lateral view; 2, 3, Antennae 1, 2; 4, Upper lip; 5, Right mandible; 6, Right molar; 7, Left mandible; 8, Lower lip; 9, Inner plate of maxilla 1; 10, Outer plate of maxilla 1; 11, Palp of maxilla 1; 12, Maxilla 2; 13, Maxilliped; 14, Gnathopod 1; 15, Dactylus of gnathopod 1. Scales: A, Fig. 1; B, Figs. 4–13, 15; C, Figs. 2, 3, 14.



Figs. 16–30. *Metatiron bonaerensis*, new species. Holotype, adult male. 16, Gnathopod 2; 17, Dactylus of gnathopod 2; 18, Peraeopod 3; 19, Dactylus of peraeopod 3; 20, Peraeopod 4; 21, Dactylus of peraeopod 4; 22, Peraeopod 5; 23, Dactylus of peraeopod 5; 24, Peraeopod 6; 25, Dactylus of peraeopod 6; 26, Peraeopod 7; 27, Dactylus of peraeopod 7; 28–30, Epimera 1–3. Scales: A, Figs. 16, 18, 20, 22, 24, 26, 28–30; B, Figs. 17, 19, 21, 23, 25, 27.

with 2 apical tooth-like spines and several submarginal plumose setae; outer plate broad, carrying 3 apical long spines, 6 short, stout medial spines and submarginal setae; palp slender, with 4 articles, article 4 almost as long as article 3, bearing a distal nail (Figs. 43, 44).

Peraeopods 3–7 similar, but bearing more setae.

Pleonal epimera 1 and 3, posteroventral corners more rounded than male. Fully developed oostegites elongate, narrow, marginally setose, attached to coxae 2–5 (Fig. 45).

Urosomites 1 and 2 dorsally less elevated than in male; urosomite 3 without dorsal hump (Fig. 46). Telson with numerous longer dorsal spines arranged in row on each lobe; one lobe bearing 2 subapical spines, other lobe with 1 subapical spine (Figs. 47–49).

Paratypic males and females at different stages of maturity; general appearance of pleonites 1–3 and urosomites 1–3 as in holotype and allotype; no morphological variations were observed.

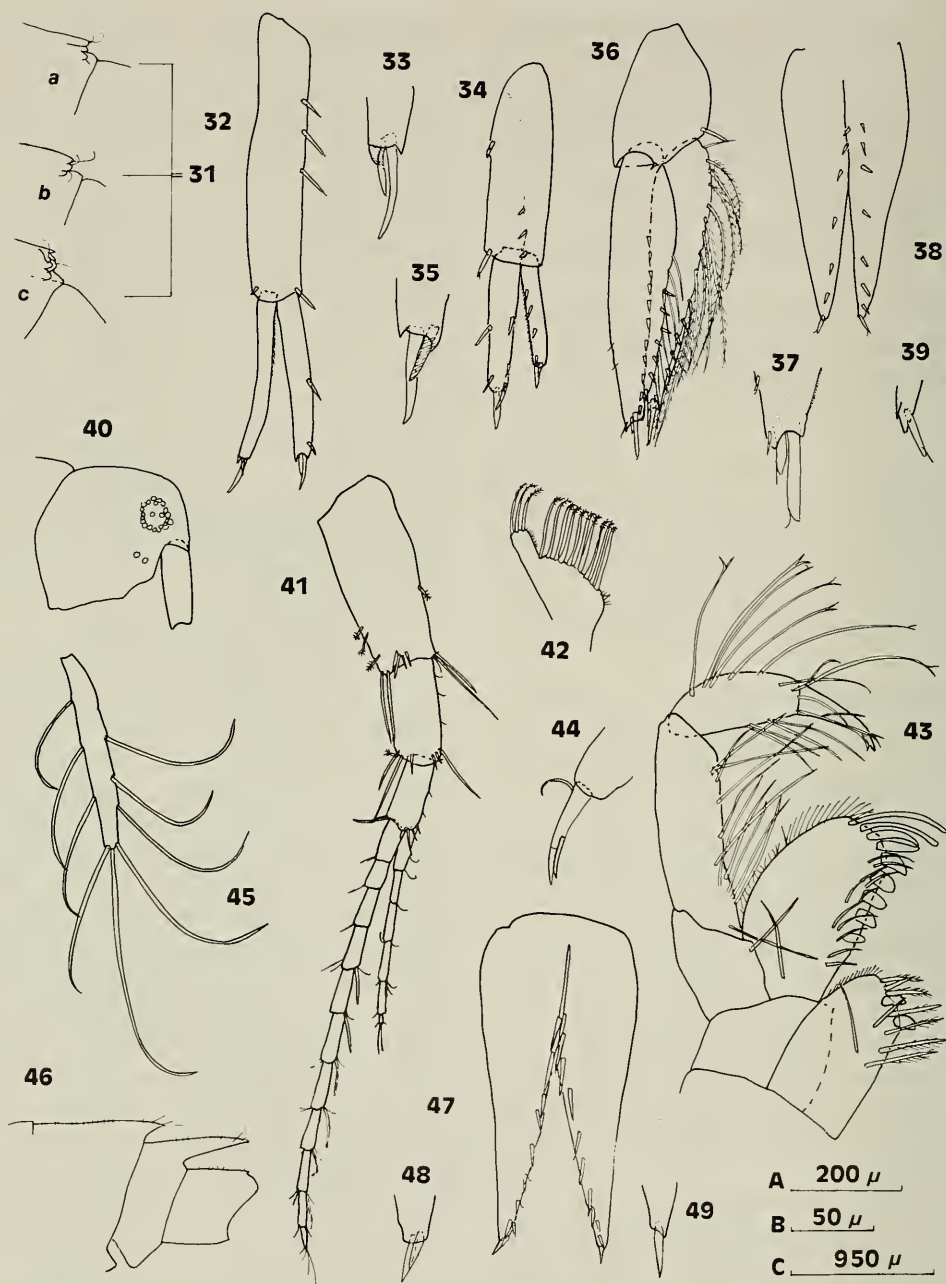
*Habitat*.—The specimens were dredged from sand bottom, at depths of 9.5–19 m. Fine grain size sand prevailed, but one sampling station contained a high percentage of medium grain size sand. No fractions of lime or clay were found (salinity 32.46–33.05‰; temperature 14.1–15.4°C).

*Etymology*.—The species is named in reference to the biogeographical zone, the Bonaerensian district, where the specimens were found.

*Remarks*.—The new species, *Metatiron bonaerensis*, is assigned to the genus *Metatiron* Rabindranath, 1972, based on the absence of mandibular palp. Barnard (1972) in his review of the family Synopiidae described the genus *Tiron* Liljeborg, 1865, mentioning the presence of a mandibular palp; he made a brief diagnoses of all its known species; some of them had a mandibular palp while others [like *T. brevidactylus* (Pillai 1957) and *T. tropakis* Barnard 1972] the palp was absent, or its condition

was unknown. More recently, other authors including Just (1981), Goeke (1982) and Hirayama (1988) have placed new species that lacked a palp on the mandible in *Tiron*. Barnard & Karaman (1991) diagnosed the genera *Metatiron* and *Tiron*, but did not allocate species to *Metatiron*; these authors separated both genera by the absence of a mandibular palp and the presence of mid-dorsal tooth on pleonites 1–3 in *Metatiron*. The new species described in this paper is assigned to *Metatiron*, primarily because of the absence of a palp on the mandible, and secondarily because of dorsal crenulations on pleonites 1–3. Ledoyer (1979) supported the proposal of Rabindranath (1972) that the lack of the palp in *Metatiron* was a character of generic value, as did Thomas (1993) in his identification manual for marine amphipods of South Florida.

*Metatiron bonaerensis* is most closely related to *Tiron tropakis* Barnard, 1972. They resemble each other in their general appearance; they have the accessory eye formed of two separate ommatidia, both lack the palp on the mandible, the peraeopods possess stubby dactyli, and the male and female telsons bear similar dorsal spines. *Metatiron bonaerensis* is easily distinguished from *T. tropakis* by the laterally smooth pleonites 1–3 which are serrated in the other species, and the forehead protuberance compared with the evenly rounded forehead in *T. tropakis*; in addition, coxa 7 is more quadrate in the new species, and maxilla 1 inner plate is morphologically different in both taxa. *Metatiron brevidactylus* (Pillai 1957) (transferred by Rabindranath 1972), *M. caecus* Ledoyer 1979, *M. triocellatus* (Goeke 1982) (transferred by Thomas 1993), *T. ovatibasis* Hirayama, 1988 and *T. galeatus* Hirayama, 1988 also lack a mandibular palp, but they can be separated from the new species as follows: *M. brevidactylus* has maxilla 1 inner plate small without setae and telson with only one spine at the middle of each lobe; *M. caecus*, *T. ovatibasis* and *T. galeatus* lack accessory eyes, whereas *M. triocellatus* has



Figs. 31-49. *Metatiron bonaerensis*, new species. Holotype, adult male. 31 (a-c), Pleonites 1-3; 32, Uropod 1; 33, Ramus tip of uropod 1; 34, Uropod 2; 35, Ramus tip of uropod 2; 36, Uropod 3; 37, Ramus tip of uropod 3; 38, Telson; 39, Apical lobe of telson. Allotype, ovigerous female. 40, Head; 41, Antenna 1; 42, Inner lobe of maxilla 1; 43, Maxilliped; 44, Fourth article of maxilliped; 45, Oostegite; 46, Urosomites 1-3; 47, Telson; 48, 49, Apical lobes of telson. Scales: A, Figs. 31, 32, 34, 36, 38, 41, 45, 47; B, Figs. 33, 35, 37, 39, 42-44, 48, 49; C, Figs. 40, 46.

accessory eyes composed of three ommatidia, instead of two as in *M. bonaerensis*.

### Acknowledgments

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