

NEW GEOGRAPHIC RECORDS OF TWO SPECIES OF CIROLANIDAE (CRUSTACEA: ISOPODA) FROM THE EASTERN TROPICAL PACIFIC

The fauna of Cirolanidae of the eastern tropical Pacific has recently been reviewed by Brusca *et al.* (1995. *Proc. San Diego Soc. Nat. Hist.* 30: 1-96). The 18 species which are currently recognized for this area by these authors are now well described and illustrated.

During extensive surveys of marine and brackish water habitats in the Gulf of California, Mexico, many specimens of isopods were collected and preserved for further studies. These specimens, which are currently under study, were obtained on the continental platform and slope between 1979 and 1991 by means of different sampling gears (Van Veen and Smith McIntyre grabs, Agassiz dredge, and otter-trawls) at depths of up to 1000 m, or collected by hand in the intertidal. Off-shores samples were obtained during scientific cruises of the FC1 (Escuela Técnica Pesquera, Mazatlán) and the R/V "El Puma" (ICMyL, UNAM), or from shrimp by-catch. Up to date, only a small part of this material had been reported in literature (see Brusca, 1981. *Zool. J. Linn. Soc.* 73: 117-199; Hendrickx & van der Heiden, 1983. *Anales. Inst. Cienc. del Mar y Limnol., Univ. Nac. Autón. México* 10: 277-280). The rest had carefully been sorted out, preserved and kept in the Invertebrate Reference Collection, Estación Mazatlán, UNAM, either has identified (ca. 5% of lots) or unidentified (ca. 95% of lots) material. Recent support obtained from the CONABIO (Comisión Nacional para el Uso y Conocimiento de la Biodiversidad), Mexico, allowed us to review this material and to report two additional species of Cirolanidae for the first time for the Pacific Coast of Mexico: *Conilera bullisi* Brusca, Wetzer & France, 1995, previously known only from the type-locality in Ecuador, and *Metacirolana costaricensis* Brusca & Iverson, 1985, previously known only from Central-America and the Galapagos Islands. These new records represent important range extension of both species to the north and emphasize the urgent need for further studies of isopods in Mexican waters.

The material reported in this paper is deposited in the Reference Invertebrate Collection, at the Estación Mazatlán, UNAM (EMU-). Illustrations are provided for each species, showing diagnostic characters. Abbreviations used in this paper are: St., station; TL, total length; coll., collector of material; LIB, Laboratorio de Invertebrados Bentónicos, Estación Mazatlán.

Orden ISOPODA Latreille, 1817
Family CIROLANIDAE Dana, 1853

Conilera bullisi Brusca, Wetzer & France, 1995
(Figs. 1-3)

Conilera bullisi Brusca, Wetzer & France, 1995: 39, figs 27-29.

Material examined. CORTES 1, St. 19, San Miguel Cape ($28^{\circ}09.4'N$ - $112^{\circ}46.6'W$), Baja California, Gulf of California, Mexico, 06/V/1982, 8 males (TL 7.2-8.8 mm) and 8 females (TL 7.4-10.6 mm) (EMU-4169), coll. CORTES cruise, with an oyster dredge, at 33-35 m, on sandy bottom (medium grain size).-CORTES 1, St. 9, Isla Carmen ($25^{\circ}47.0'N$ - $111^{\circ}05.0'W$), Gulf of California, Mexico, 04/V/1982, 1 male (TL 8.4mm) (EMU-4170), coll. CORTES cruise, with an oyster dredge, at 55-60 m, on gravel bottom.

Remarks. *Conilera bullisi* was originally described from subtidal habitat (70 m depth) in the Gulf of Guayaquil, Ecuador. Specimens from the Gulf of California agree with the description of the type material except for the presence of three spines instead of two on the propodi of pereopod 1. The merus of the 3rd pereopod bears three blunt spines instead of two. Present records increase the maximum known size of the species to 10.6 mm, the geographic distribution by over 30 degrees of latitude, and provides further data concerning its bathymetric distribution. Indeed, the species is now known from a depth range of 33-35 m to 70m.

Metacirolana costaricensis Brusca & Iverson, 1985
Figs. 4-7

Metacirolana costaricensis Brusca & Iverson, 1985: 36, fig. 11d; Bruce, 1986: 222; Brusca *et al.*, 1995: 72, figs 60A-B, 63-64.

Material examined. Ensenada de Puerto Viejo ($23^{\circ}14.0'N$ - $106^{\circ}27.0'W$), Mazatlán, Sinaloa, Mexico, 26/IV/1980, 5 males (TL 3.7-4.2 mm), 1 female and 1 ovigerous female (TL 3.3-3.4 mm) (EMU-4227A), coll. P. Meizner, rocky intertidal; same locality, 16/XII/1982, 1 male (TL 4.2 mm) (EMU-4227B), coll. P. Meizner, rocky intertidal.-Rincón de Guayabitos ($21^{\circ}02.6'N$ - $105^{\circ}19.4'W$), Nayarit, Mexico, 11/IV/1996, 3 males (TL 1.5-3.3 mm) (EMU-4368), coll. LIB, rocky intertidal.-Sayulita ($20^{\circ}52.3'N$ - $105^{\circ}28.0'W$), Nayarit, Mexico, 10/IV/1996, 7 males (TL 3.6-4.4 mm) and 8 females (TL 2.3-3.7 mm) (EMU-4367), coll. LIB, rocky intertidal.-Ensenada de Litigu ($20^{\circ}47.4'N$ - $105^{\circ}31.9'W$), Nayarit, Mexico, 9/IV/1996, 4 males (TL 1.4-3.3 mm) and 7 females (TL 3.2-3.9 mm) (EMU-4366), coll. LIB, rocky intertidal.

Remarks. *Metacirolana costaricensis* was briefly described by Brusca & Iverson (1985. *Rev. Biol. Trop.* 33: 1-77) on the basis of a single specimen collected from a rocky shore environment, outside a mangrove estero, in Costa Rica. At that time,

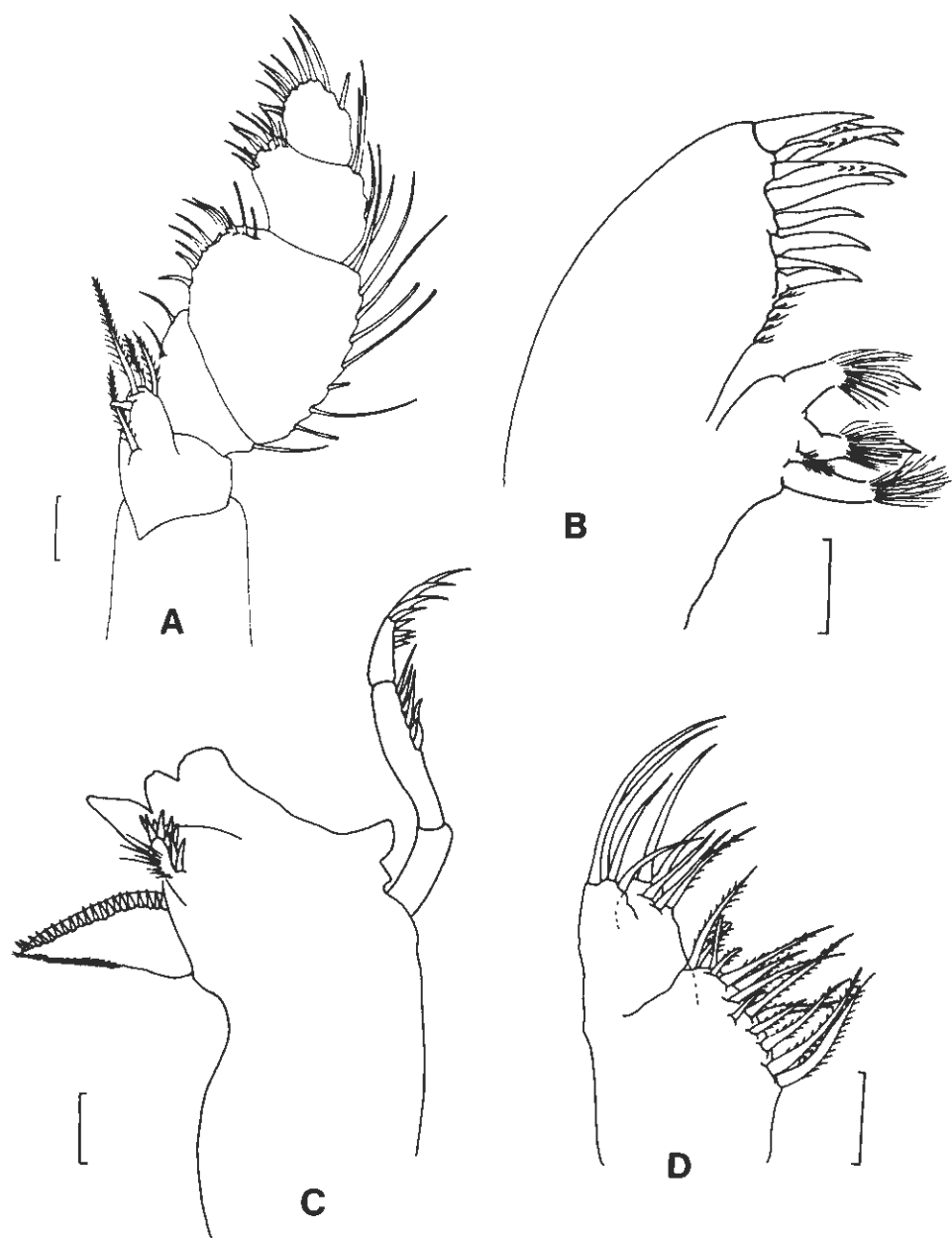


Fig. 1. *Conitera bullisi* female. A, maxilliped; B, maxillule; C, mandible; D, maxilla (Scale 0.1 mm)

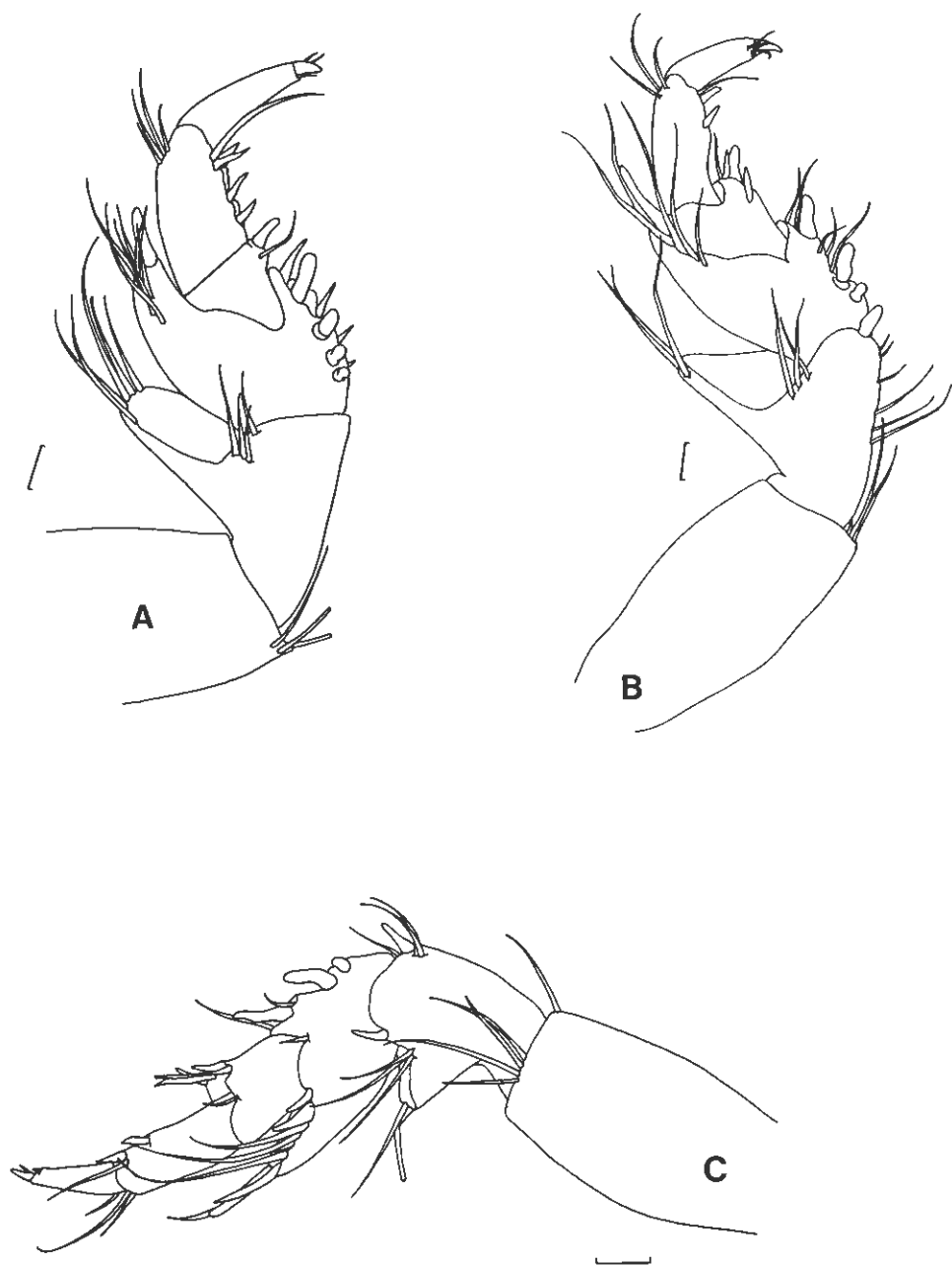


Fig. 2. *Conilera bullisi* female. Pereopods of adult female. A, pereopod I; B, pereopod III; C, pereopod IV (Scale 0.1 mm).

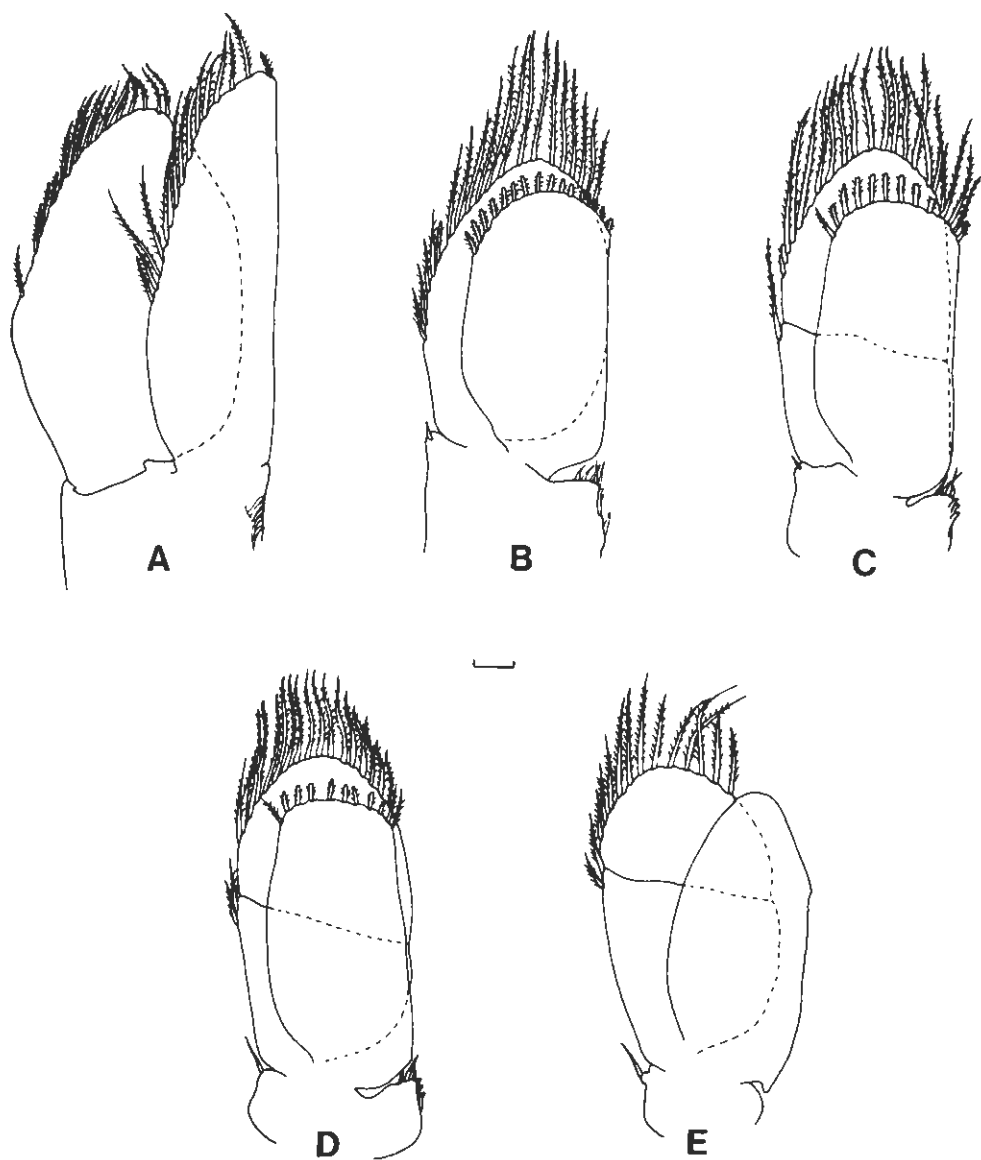


Fig. 3. *Conilera bullisi* female. Pleopods of adult female. A, pleopod 1; B, pleopod 2; C, pleopod 3; D, pleopod 4; E, pleopod 5 (Scale 0.1mm).

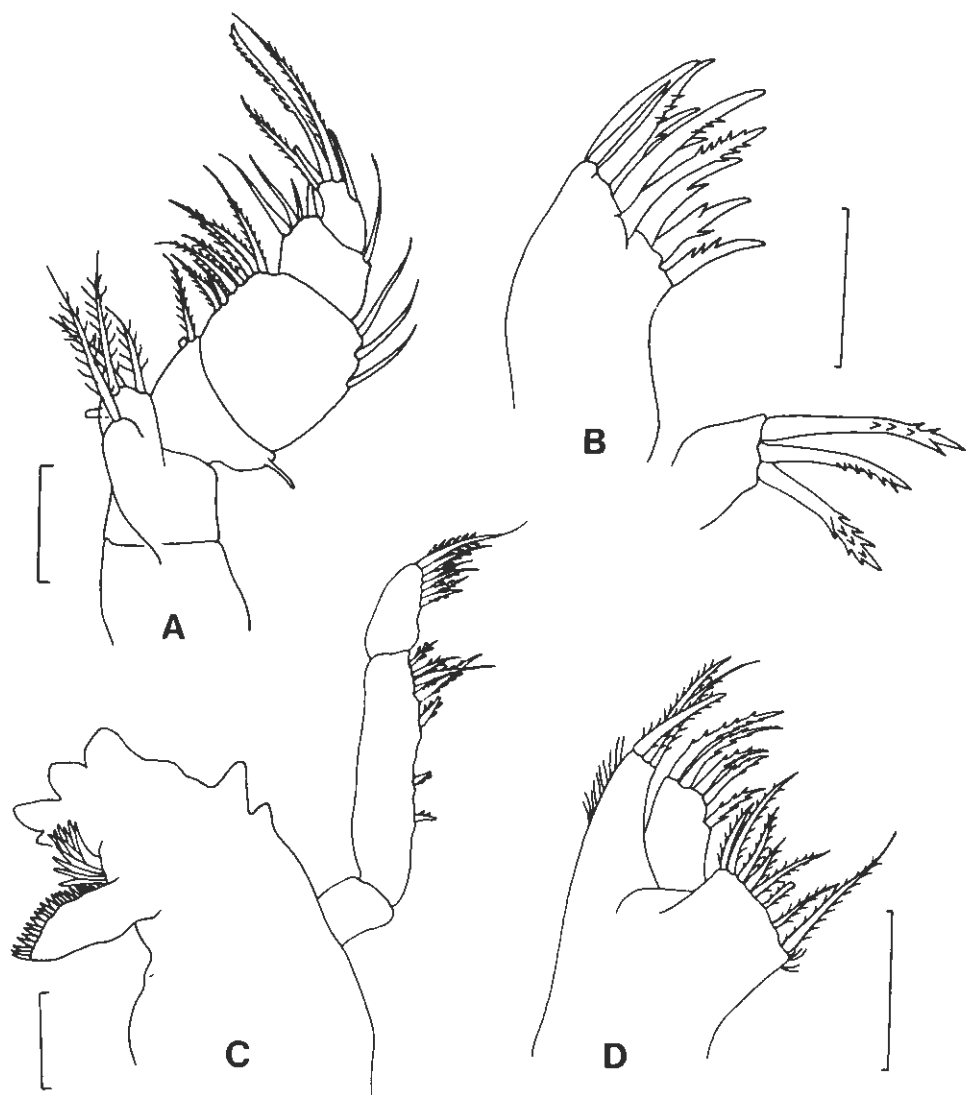


Fig. 4. *Metacriolana costaricensis* male. A, maxilliped; B, maxillule; C, mandible; D, maxilla (Scale 0.1 mm)

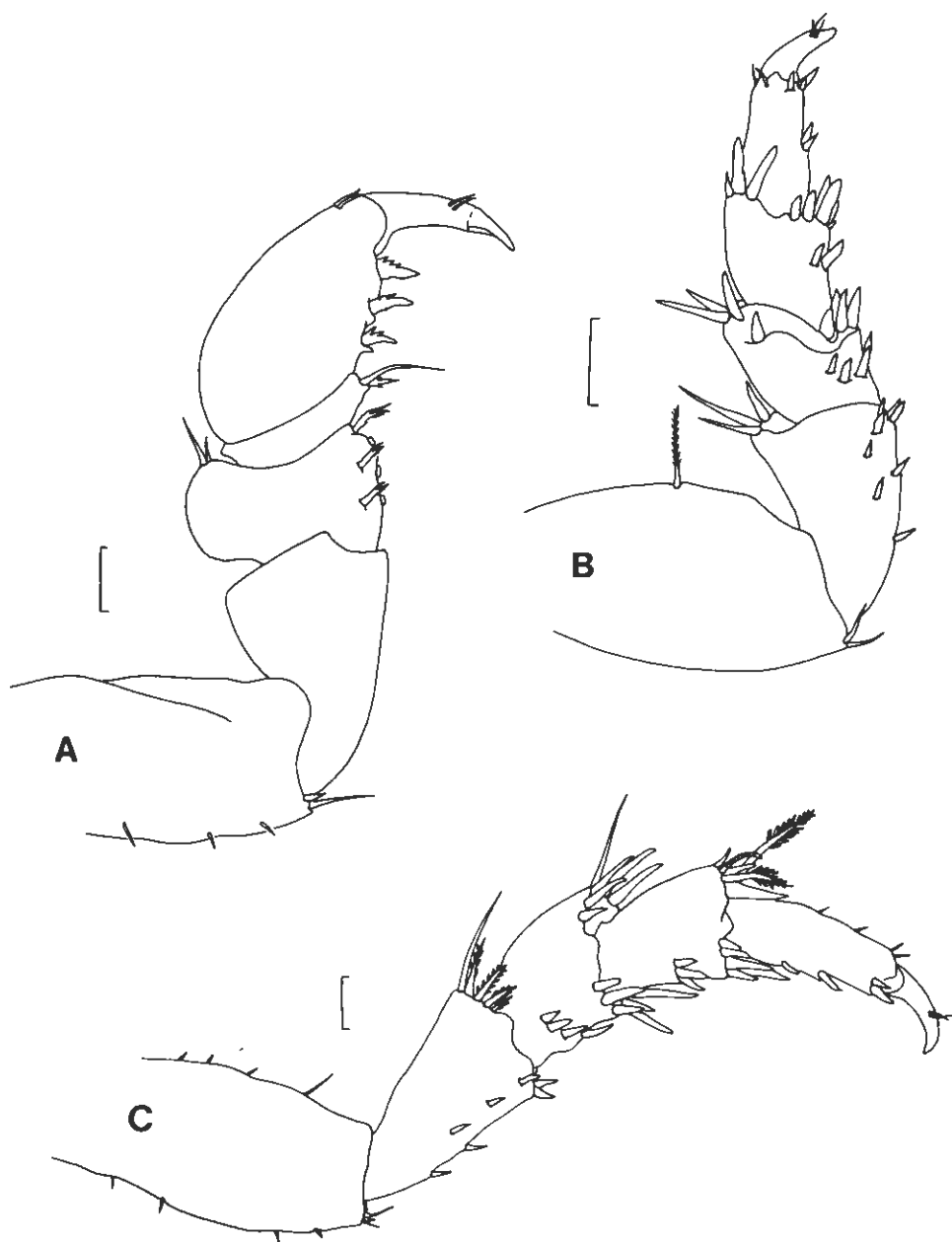


Fig. 5. *Metacirrolana costaricensis* male. Pereopods of adult male. A, pereopod I; B, pereopod IV; C, pereopod VII (Scale 0.1 mm)

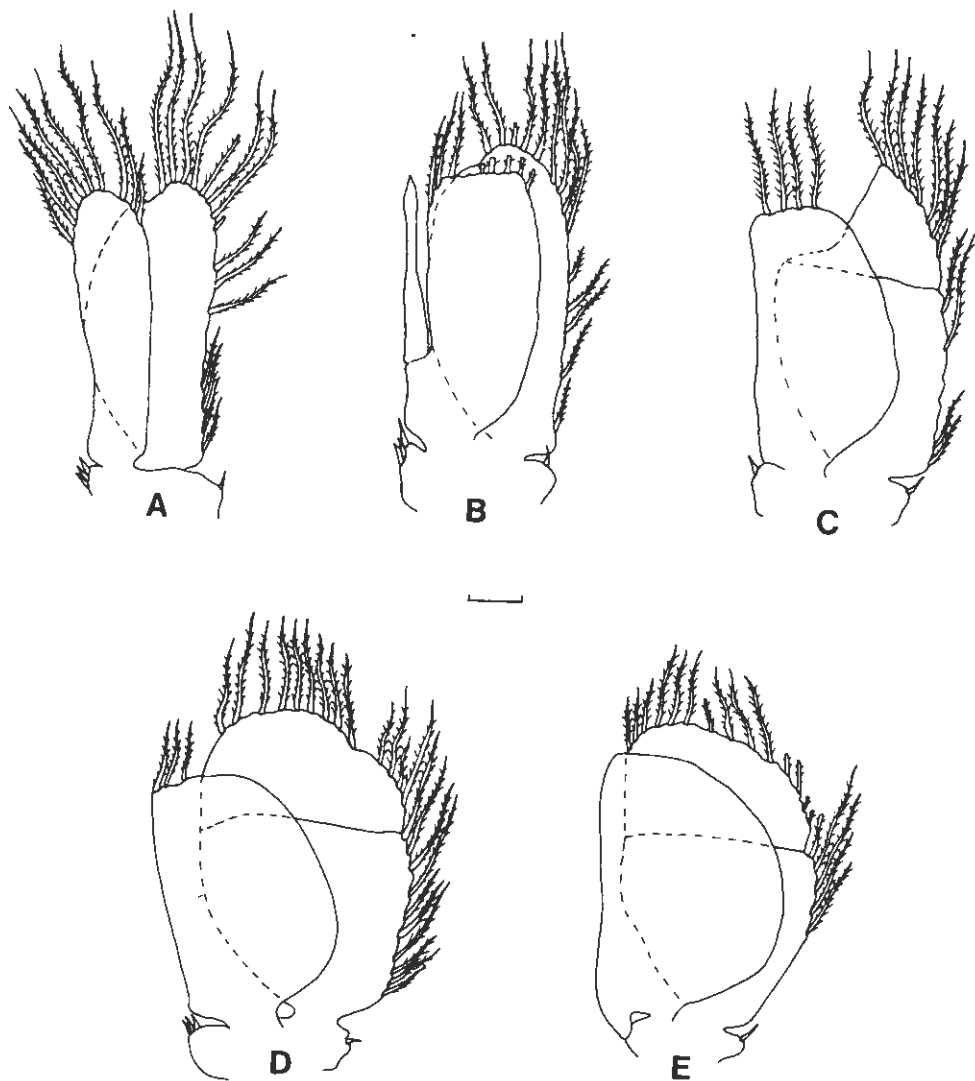


Fig. 6. *Metacirolana costaricensis* male. Pleopods of adult male. A, pleopod 1; B, pleopod 2; C, pleopod 3; D, pleopod 4; E, pleopod 5 (Scale 0.1mm).

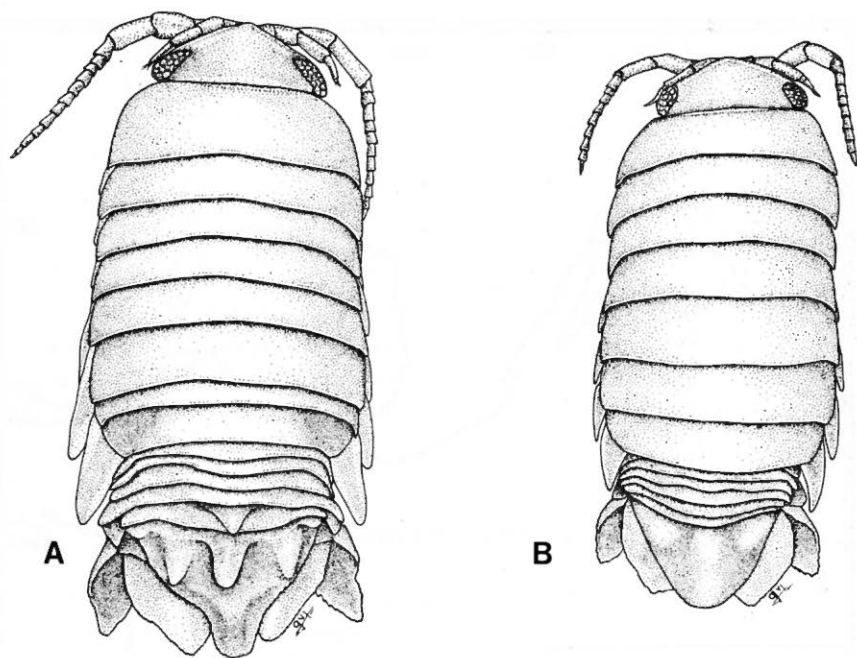


Fig. 7. *Metacirolana costaricensis*. A, adult male; B, adult female (Scale 1.0 mm).

only a *habitus* illustration of the holotype (a male) was provided. In their review of the Cirolanidae of the eastern tropical Pacific, Brusca *et al.* (1995, *op. cit.*) reported additional material collected at the type locality (15 specimens, referred to as paratypes), and other specimens from Costa Rica, Panama, and the Galapagos Islands, thus extending the previously known distribution of *M. costaricensis* much further south. The species was also carefully redescribed and illustrated by these authors. Our material agrees with this description, except for the following. The shape of the two females from Mazatlan is similar to the shape of the male (Fig. 7), contrary to the female paratype illustrated by Brusca *et al.* (1995, *op. cit.*) which is much narrower. According to Brusca *et al.* (1995, *op. cit.*), *M. costaricensis* is essentially littoral; most specimens were collected in depths of 0-3 m. The present records confirms this habitat; the Ensenada de Puerto Viejo is characterized by shallow, turbid water, with numerous rocky areas and heavy growth of the brown algae *Padina durvillaei* Bory. Present records considerably increase the distribution range of *Metacirolana costaricensis* northward (ca. 13 degrees of latitude).

Apart from the fact that present records increase the number of known localities for both species, their presence in the Gulf of California is significant from a zoogeographic viewpoint. On the one hand it confirms their belonging to the eastern tropical fauna, with a distributional range that appears to spans over most

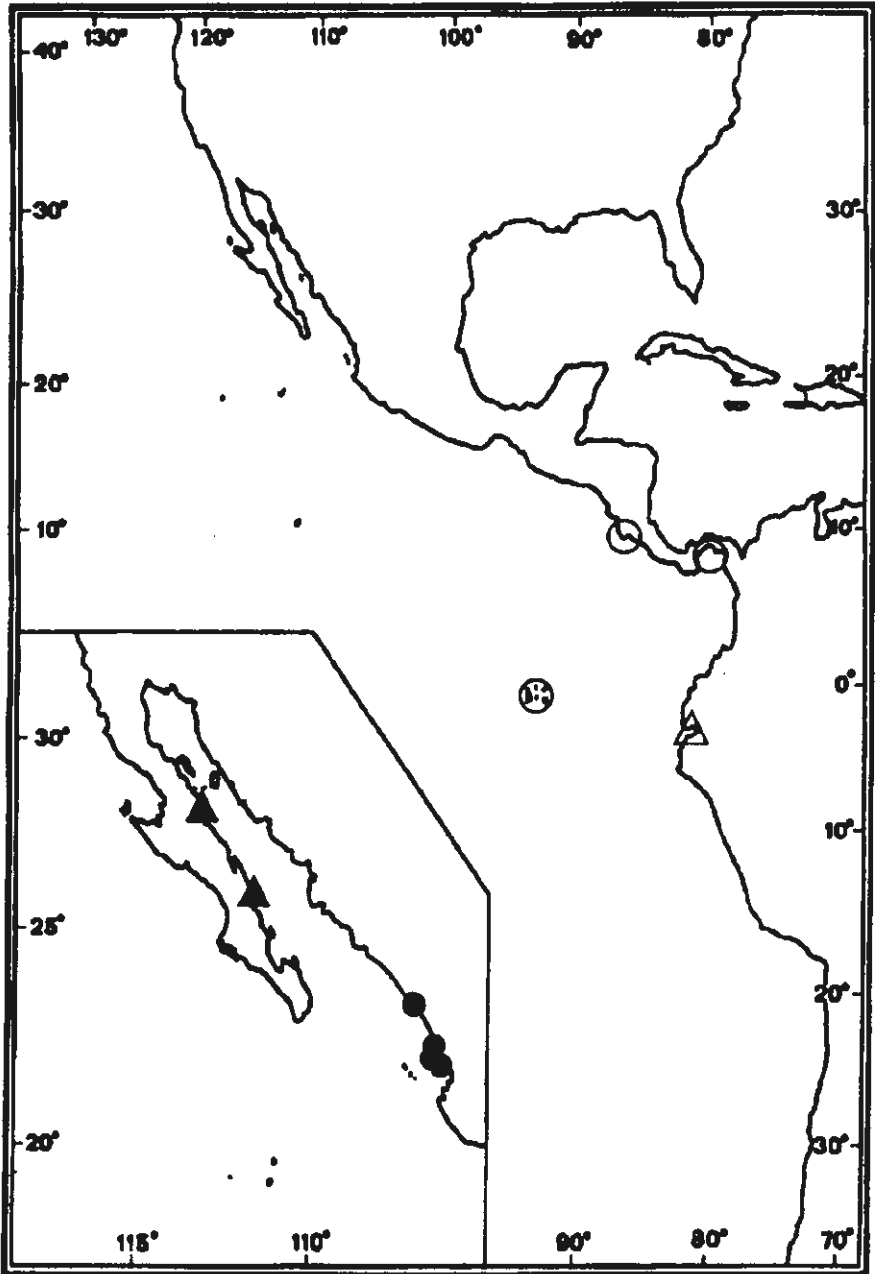


Fig. 8. Sampling sites of *Conilera bullisi* (▲) and *Metacriolana costaricensis* (●) in the eastern tropical Pacific, including previously known localities (open symbols) and localities referred herein (solid symbols)

of its extension (86.1% and 63.8% respectively) (Fig. 8). On the other hand it increases from 8 to 10 the total number of Cirolanidae presently known from the Gulf of California (see Brusca *et al.*, 1995, *op. cit.*), an area where most of the eastern tropical Pacific isopods studies have been performed.

Significant increases of distribution range of species of eastern tropical Pacific marine crustaceans have been frequently reported in the last two decades (see Brusca & Iverson, 1985, *op. cit.*; Villalobos *et al.*, 1989, *Listados faunísticos de México. I. Inst. Biol., UNAM*, 114 p.; Lemaitre and Ramos, 1992, *Proc. Biol. Soc. Wash.* 105(2): 343-358; Hendrickx, 1992, *Proc. San Diego Soc. Nat. Hist.* 20: 1-11; Markham, 1992, *Proc. San Diego Soc. Nat. Hist.* 17: 1-4; Brusca *et al.*, 1995, *op. cit.*), thus indicating that our knowledge of established communities is far from being complete. A wide and sustained collecting effort is still needed today, together with widely available review papers including comprehensive identification keys to species.

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