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Ptychophallus costaricensis, a new freshwater crab from Costa Rica

by

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ABSTRACT: A new freshwater crab of the genus *Ptychophallus* is described from Costa Rica, based on the morphology of the gonopod. The species lives under rocks in small streams at an altitude of approximately 1,300 m and at a median water temperature of 16 C. Twelve specimens were collected at Quebrada Los Tubos and thirty-two at Río Naranjo, Santa María de Dota, both sites in the Province of San José. Distribution is apparently restricted to the southwest of Costa Rica.

The systematics of the American freshwater crabs has been extensively studied by RATHBUN (10, 11, 12) and BOTT (3, 4, 7, 8). Central American species have been reviewed by BOONE (1), BOTT (2, 5, 6), HOLTHUIS (9) and recently by SMALLEY (13, 15, 16).

The proposed new species belongs to the genus *Ptychophallus* and is based on gonopod morphology used by SMALLEY (14, 16). The species was found living under rocks in small streams at median altitudes (1,300 m at Río Naranjo station), at a water temperature of about 16 C.

Twelve specimens were collected at Quebrada Los Tubos, San Isidro de El General, San José Province and thirty-two at Río Naranjo, Santa María de Dota, San José Province. Distribution appears to be limited to the southwest part of Costa Rica.

MATERIAL EXAMINED: Quebrada Los Tubos, San Isidro de El General, April 7, 1972, 3♂♂ (CVS-079-72); April 22, 1972, 8♂♂, 3♀♀ (CVS-095-72); Finca El Cedral, approx. 6 km. SW of Santa María de Dota, San José Province; April 23, 1972, 1♂ (CVS-084-72). Río Naranjo, approx. 10 km SW of Finca El Cedral, May 6, 1972, 7♂♂, 66♀♀ (CVS-088-72); Quebrada San Lucas, approx. 5.5 km from

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Finca El Cedral on the way to Naranjo, May 7, 1972, 2♂♂, 10♀♀ (CVS-089-72); quebrada approx. 5.0 km from Finca El Cedral on the way to Naranjo, May 7, 1972, 6♀♀ (CVS-090-72).

DISPOSITION OF TYPES: Male holotype UCR 392 (from CVS-079-72); one male and one female paratypes, Dr. Alfred Smalley (from CVS-095-72); female paratype, UCR 393 (from CVS-095-72); remaining paratypes in the University of Costa Rica collections.

DESCRIPTION: The morphology of the gonopod (Fig. 1 A, B and C) agrees with that described for the oldest subgenus *Ptychophallus;* the caudal process as in *Ptychophallus montana;* the mesial lobe similar to that of *P. tumimanus* although slightly less pointed; the lateral subapical process is bilobuled but with a deeper interlobal notch, as in *P. tristani.* Ventrally, the caudal process shows a decrease in width, ending in two finger-like curved processes that leave a central oval area. Spines are large and numerous. There are two short spines on the ventral surface just below the posterior end of the caudal process (Fig. 1 C), the upper slightly less pointed than the lower.

Carapace extremely oval (Fig. 2), smooth, except on the posterolateral surface which is covered by short black setae; cervical groove deep, almost reaching the anterolateral margin; anterior medial grove not prominent; anterolateral margin rough, with no true teeth; front almost vertical, the upper margin smooth. Merus of external maxillipeds (Fig. 3) with outer border convex, the inner one straight. Articulation of palp on a median protuberance of the anterior margin; shallow notch lateral to articulation of palp. Exognath reaching about four-fifths the length of outer margin of ischium. Chelae unequal in adults, even in juveniles; median area of major palm swollen; fingers of major chela gaping in males (Figs. 1 D and 4); fixed finger with the third tooth largest; a tubercle at base of all fingers; dorsal surface of movable finger covered with short tubercles close to tip.

MEASUREMENTS: Holotype, male. Greatest carapace width: 44.4 mm; median carapace length: 27.1 mm.

Largest specimen, female. Greatest carapace width: 49.1 mm; median carapace length: 29.2 mm.

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RESUMEN

Se describe una nueva especie de cangrejo de agua dulce del género *Ptychophallus* de Costa Rica, basado en la morfología del gonopodio. La especie habita bajo piedras en quebradas pequeñas que se localizan a una altura media de unos 1.300 m. La temperatura del agua es de aproximadamente 16 C. Se colectó doce especímenes en la Quebrada Los Tubos, San Isidro de El General, Provincia de San José y treinta y dos en Río Naranjo, Santa María de Dota, Provincia de San José. La distribución pareciera estar restringida a la región suroeste de Costa Rica.

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Fig. 1. Morphological characters of the right gonopod and outer surface of major chela of *Ptychophallus costaricensis* n. sp. Holotype.
A. Caudal surface
B Ventral surface
C. Cephalic region of B.
D. Outer surface of major chela showing dentition.

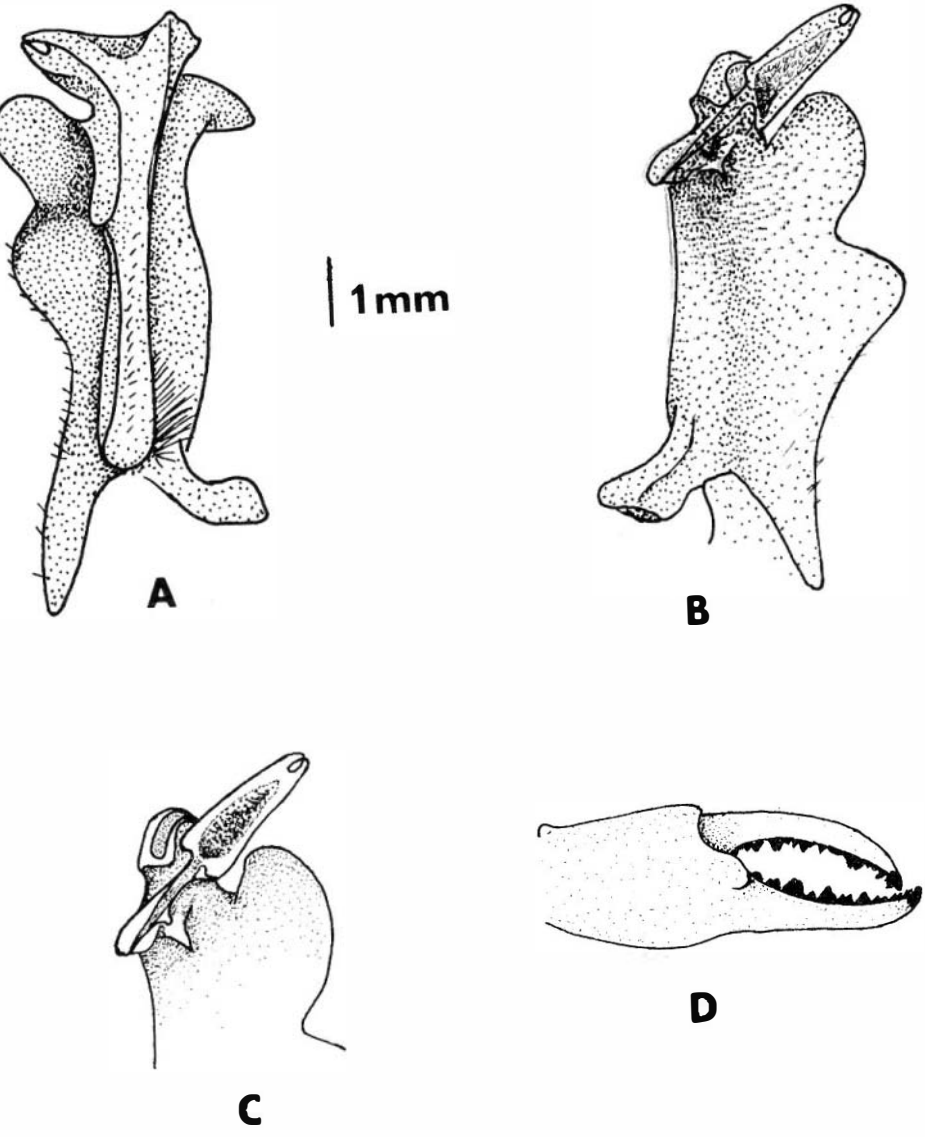

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Fig. 2. Dorsal view of *Ptychophallus costaricensis* n. sp.

Fig. 3. Ventral view of *P. costaricensis* n. sp.

Fig. 4. Outer surface of major chela of *P. costaricensis* n. sp.

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