

***Neostrengeria lemaitrei*, a new species of freshwater crab from Colombia (Crustacea: Decapoda: Pseudothelphusidae), and the vertical distribution of the genus**

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Abstract.—A new species of the genus *Neostrengeria* Pretzmann, 1965, *N. lemaitrei* from Magdalena Valley, Cundinamarca Department, is described. The genus is endemic to the Eastern Andes of Colombia, at altitudes ranging from 300 to 3000 m above sea level. With the addition of *N. lemaitrei* the total number of species rises to 21. This new species, like all others in *Neostrengeria*, is distinguished primarily by the morphology of the first male gonopod, particularly by the form of lateral and accessory lobes, and the shape of the apex.

The genus *Neostrengeria* Pretzmann, 1965, comprises 21 species of freshwater crabs that inhabit mountain springs and streams on the slopes and high plain of the Eastern Andes in Colombia (2° to 9°40'N, 73° to 74°50'W), at altitudes ranging from 300 to 3000 m above sea level (Campos 1994).

The taxonomy of *Neostrengeria* was reviewed by Rodríguez (1982), with follow up studies by Campos (1992, 1994, 2000). Campos & Lemaitre (1998) presented a key for the identification of the species based on the morphology of the male first gonopod. The distribution of the genus has been discussed by Campos & Rodríguez (1985), and Campos (1992, 1994). The present new species was found in the Magdalena Valley, at altitude of 720 m above sea level.

The general carapace morphology of *Neostrengeria* species is very similar. The species are characterized primarily by the shape of the first male gonopod which has a distinct lateral lobe generally divided in two halves forming an accessory lobe. The form of the gonopod's apex is also variable according to the species, and can be oval, oblong, or expanded into a projection.

The terminology used for the different

processes of the gonopod is that established by Smalley (1964), Rodríguez (1982) and Campos & Lemaitre (1998). The material is deposited in Museo de Historia Natural, Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá (ICN-MHN). The abbreviations cb and cl, reported as $cl \times cb$, indicate carapace breadth and carapace length, respectively. Color nomenclature follows Smithe (1975).

Family Pseudothelphusidae Rathbun, 1893
Tribe Hypolobocerini Pretzmann, 1971
Genus *Neostrengeria* Pretzmann, 1965
Neostrengeria lemaitrei, new species

Fig. 1

Holotype.—Agua Blanca stream, Vereda Lamal, Inspección Guadualito, Municipio Yacopí, Cundinamarca Department, Colombia, 720 m alt., 4 Nov 1995, leg. M. R. Campos: 1 male, 13.9×23.6 mm, ICN-MHN-CR 1991.

Paratypes.—Same locality data as holotype: 5 males, size range 8.1×12.9 mm, to 12.5×20.0 mm, 4 females, size range 9.4×14.7 mm, to 7.4×11.2 mm, ICN-MHN-CR 1533.

Type locality.—Agua Blanca stream, Vereda Lamal, Inspección Guadualito, Mu-

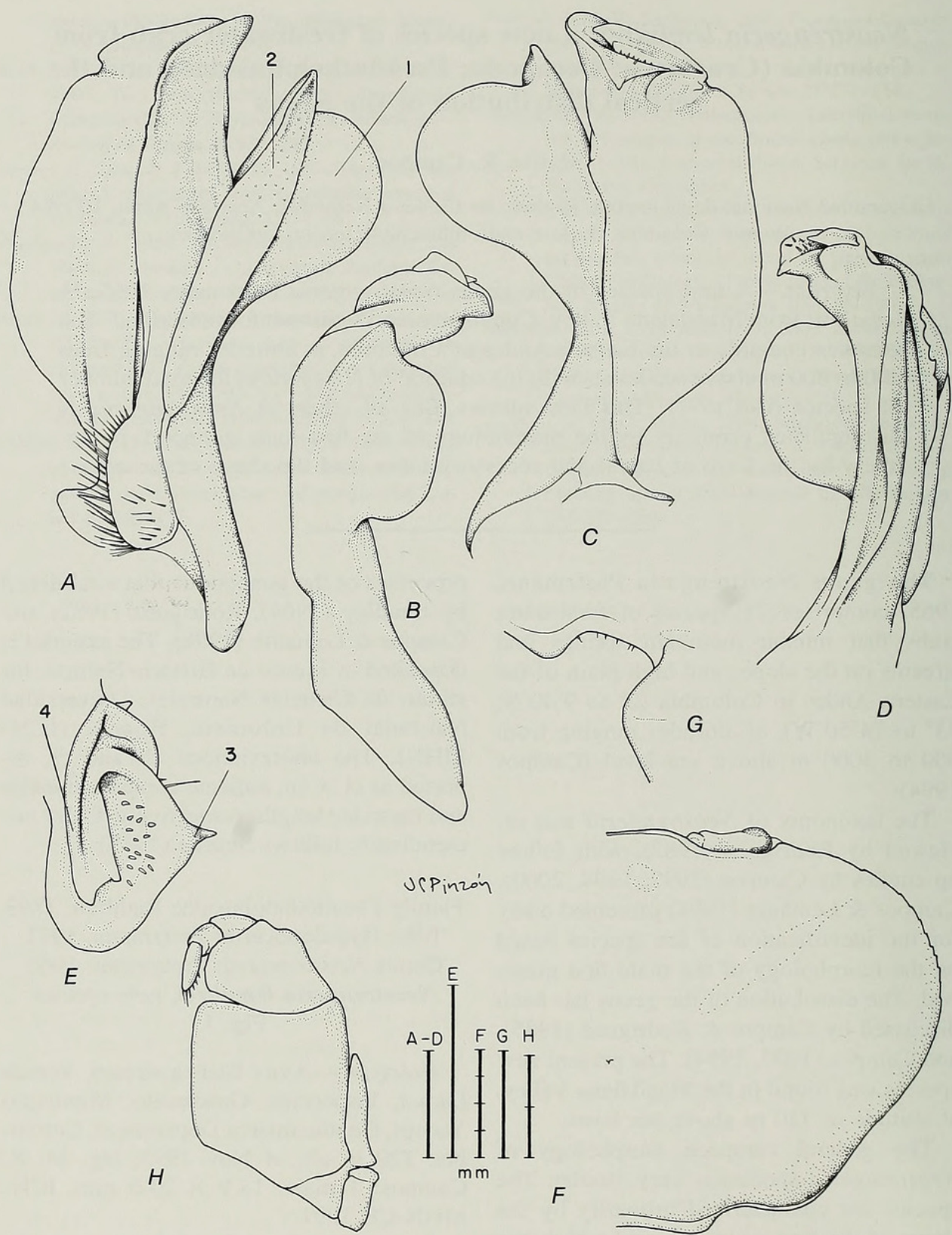


Fig. 1. *Neostrengeria lemaitrei*, new species, male holotype, ICN-MHN-CR 1991. A, left first gonopod, caudal view; B, same, lateral view; C, same, cephalic view; D, same, mesial view; E, same, apex, distal view; F, right carapace half, dorsal view; G, left opening of efferent branchial channel, external view; H, left third maxilliped, external view. 1, lateral lobe; 2, accessory lobe; 3, cephalic expansion; 4, mesocaudal projection of spermatic channel.

nicipio Yacopí, Cundinamarca Department, Colombia, 720 m alt.

Diagnosis.—Carapace without median groove; front lacking distinct upper border. Third maxilliped with exognath 0.67 times length of ischium. First male gonopod with lateral lobe semicircular distally, proximally narrow, with external margin concave; accessory lobe elongated, semi-acute distally, forming excavated ridge on caudal surface; accessory lobe as long as lateral lobe. Apex outline oval with expansion projected cephalically into prominent, acute spine.

Description of holotype.—Carapace (Fig. 1F) with cervical groove straight, shallow, ending some distance from lateral margin. Anterolateral margin lacking depression behind external orbital angle. Lateral margin with series of approximately 15 papilliform teeth. Postfrontal lobes oval, high, indicated anteriorly by 2 transverse depressions. Median groove lacking. Front without distinct upper border, frontal area sloping downwards, slightly bilobed in dorsal view, lower margin visible in dorsal view, strongly sinuous in frontal view. Dorsal surface of carapace smooth, covered by small papillae, regions well demarcated. Third maxilliped with distal half of external margin of merus rounded, exognath 0.67 times length of ischium (Fig. 1H). Orifice of efferent branchial channel open, irregularly ovate (Fig. 1G). First pereopods heterochelous; palm of larger chela strongly swollen, fingers slight gaping when closed, smaller chela slight swollen, fingers not gaping when closed. Walking legs (pereopods 2–5) slender, but not prominently elongated (total length 1.10 times the breadth of carapace).

First male gonopod wide in caudal view; mesial side forming convex expansion with deep subdistal notch; caudal margin wide with excavated surface, festooned (Fig. 1A, D); lateral lobe wide, semicircular distally, proximally narrow with external side concave, separated from accessory lobe by deep notch (Fig. 1A–D); accessory lobe elongated, semi-acute distally, forming excavated ridge, covered with diminute papil-

lae and row of spinules on external border on caudal surface; accessory lobe as long as lateral lobe (Fig. 1A, C); apex outline oval in distal view with expansion projected cephalically into prominent, acute spine; mesial lobe subtriangular; mesocaudal projection of spermathecal channel with bifid tip; spermathecal channel with conspicuous rows of spinules; proximal cephalic border with two setae (Fig. 1C, D, E); conspicuous setae along outline of prominent basal rounded lobe, and a patch of setae on caudal surface (Fig. 1A).

Color.—The holotype, preserved in alcohol, is brown-olive (near 129, Dark Brownish Olive) on the dorsal side of the carapace. The dorsal and ventral surfaces of the chelae and the walking legs are brown (near 223, Raw Umber). The ventral surface of the carapace is beige (near 92, Pale Horn Color).

Habitat.—The specimens were collected in shaded, moist banks of springs and streams. They were found in soft mud, under rocks.

Etymology.—The species is named in honor of Colombian scientist Dr. Rafael Lemaitre, who has dedicated his life to studying Crustaceans. This species is not only a recognition of Rafael's contributions to science, but to the stimulus he has provided to a new generation of up and coming Colombian scientists.

Remarks.—A comparison of both descriptions and material of other species of the genus with that of this new species revealed that it is most similar to *Neostrengeria gilberti* Campos, 1992. The main distinguishing feature between both species is the form of the first gonopod. The male first gonopod of *N. gilberti* has been described and illustrated by Campos (1992: 542, fig. 2). In this new species, the mesial side of the gonopod is convex expanded with deep subdistal notch, whereas in *N. gilberti* it is rounded basally, straight tapering distally without subdistal notch. The lateral lobe in *N. gilberti* is rounded distally with the proximal external side straight, whereas in *N.*

Table 1.—Vertical distribution of the *Neostrengeria* species.

Species	Meters above sea level
<i>Neostrengeria appressa</i> Campos, 1992	1125–1900
<i>N. aspera</i> Campos, 1992	1600
<i>N. binderi</i> Campos, 2000	470
<i>N. botti</i> Rodríguez & Türkay, 1978	1350–2600
<i>N. boyacensis</i> Rodríguez, 1980	2350–3000
<i>N. charalensis</i> Campos & Rodríguez, 1985	1450–2150
<i>N. gilberti</i> Campos, 1992	950–1250
<i>N. guenterii</i> (Pretzmann, 1965)	500–1575
<i>N. lasallei</i> Rodríguez, 1980	1110–2150
<i>N. lemaitrei</i> , new species	720
<i>N. libradensis</i> Rodríguez, 1980	1200
<i>N. lindigiana</i> (Rathbun, 1897)	1800–2350
<i>N. lobulata</i> Campos, 1992	1700–2350
<i>N. macarenae</i> Campos, 1992	300–500
<i>N. macropa</i> (H. Milne Edwards 1853)	2200–2900
<i>N. monterrodoensis</i> Bott, 1967	1320–1500
<i>N. niceforoi</i> (Schmitt, 1969)	1000–1750
<i>N. perijaensis</i> Campos & Lemaitre, 1998	1270–1800
<i>N. sketi</i> Rodríguez, 1985	1800
<i>N. tencalanensis</i> Campos, 1992	1600–2400
<i>N. tonensis</i> Campos, 1992	1600–2400

lemaitrei it is distally semicircular, and proximally narrow with the external side concave. The apex outline in *N. gilberti* is oblong in distal view with a mesially directed semi-acute spine; the mesocaudal projection of spermatic channel is awl-shaped with a distal spinule on the inner side. In contrast, in *N. lemaitrei*, the apex outline is oval in distal view with the expansion projected cephalically into a prominent, acute spine, and the mesocaudal projection of spermatic channel has the tip bifid.

Distribution of *Neostrengeria* species

The distribution of the species of *Neostrengeria* comprises both slopes and the high plain of the Eastern Cordillera of Colombia that encompasses the Magdalena, Orinoco and Catatumbo basins. It is limited to the north by Serranía de Perijá, and to the south by Serranía de La Macarena (2° to 9°40'N, 73° to 74°50'W), (H. Milne Ed-

wards 1853; Rathbun 1897; Pretzmann 1965; Bott 1967; Schmitt 1969; Rodríguez & Türkay 1978; Rodríguez 1980, 1982, 1985; Campos & Rodríguez 1985; Campos 1992, 1994, 2000; Campos & Lemaitre 1998).

Based on the collected material, the vertical distribution of the species of the genus *Neostrengeria* (Table 1) ranges from 300 m to 3000 m. *Neostrengeria botti* has the greatest altitude range of between 1350 and 2600 m. The species that exhibit a range of between 300 and 1000 m are *N. binderi*, *N. macarenae* and *N. lemaitrei*, new species. Most of the species are distributed between 1000 and 2400 m. The highest altitude, 3000 m, is reached by *N. boyacensis*.

Acknowledgments

I am especially grateful to the referees for providing useful comments of the paper. I also indebted to David H. Campos for critically reading the manuscript. The illustration was prepared by Juan C. Pinzón.

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Campos, Martha R. 2004. "Neostrengeria Lemaitrei, A New Species Of Freshwater Crab From Colombia Distribution Of The Genus." *Proceedings of the Biological Society of Washington* 117, 363–367.

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