

OCCASIONAL PAPERS

THE MUSEUM

TEXAS TECH UNIVERSITY

NUMBER 27

14 FEBRUARY 1975

A NEW GENUS AND SPECIES OF TROGLOBITIC CIROLANID ISOPOD FROM SAN LUIS POTOSI, MEXICO

THOMAS E. BOWMAN

More species of blind and unpigmented isopods of the family Cirolanidae are known from the underground waters of México than from any other country. Of the 19 known species of troglobitic cirolanids, 11 are limited to the New World and eight of the latter occur only in México. One of the Mexican species, *Conilera stygia* Packard, is of doubtful validity, but if an undescribed species of *Speocirolana*, the description of which is now in press (Contreras-Balderas, personal communication), is substituted for *C. stygia*, the number of Mexican species is undiminished. The number of known species of Mexican troglobitic cirolanids is increased to nine by the description below of a new species, for which a new genus is proposed, as follows:

Mexilana, new genus

Diagnosis.—Eyes absent. Body without pigment, except for dark brown mandibular incisor, spines on exopod of maxilla 1, and tips of dactyls of pereopods. Body long, slender, apparently unable to roll into a ball. Pleonites 1-3 complete, reaching lateral margins of pleon; pleonite 4 covered laterally by pleonite 3; pleonite 5 with central half separated from pleotelson by suture, lateral parts fused with pleotelson. Peduncles of antennae 1 and 2, three-merous and five-merous, respectively. Pereopods 1 and 2, weakly prehensile; pereopods 3 to 7, ambulatory. Rami of pleopods undivided, but with rudimentary sutures in exopods of pleopods 3 to 5; endopods without

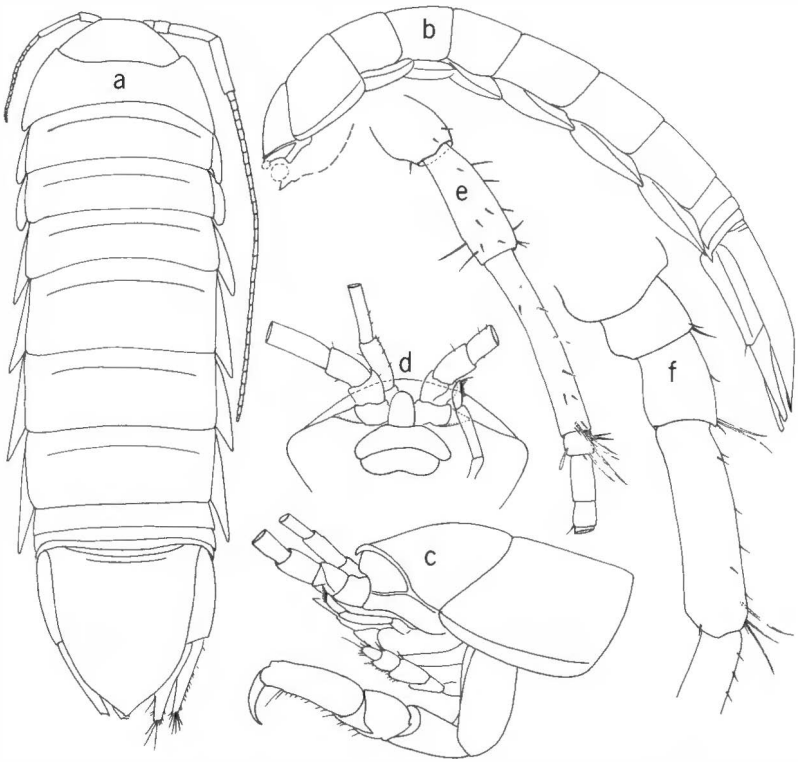


FIG. 1.—*Mexilana saluposi*: a, dorsal view; b, lateral view; c, head and pereonite 1, lateral; d, head, ventral; e, antenna 1, dorsal; f, antenna 2, dorsal.

marginal setae; exopods of pleopods 1 and 2 with a few marginal setae, exopods of pleopods 3 to 5 with only 1 or 2 marginal setae.

Etymology.—The generic name is a combination of *Mexi*(co) + (Ciro) *lana*. Gender, feminine.

Type-species.—The type and only known species of this genus is described as follows:

***Mexilana saluposi*, new species**

Figs. 1-3

1973. *Speocirolana* sp. Magniez, Int. J. Speleol., 5:163.

Holotype.—Female, USNM 149297, taken at Cueva del Huisache, 4 km. NW Micos, San Luis Potosí, México, on 28 November 1971 by William H. Russell, no. 38-U, and deposited in the United States National Museum of Natural History.

Paratypes.—Type locality, taken 28 November by William H.

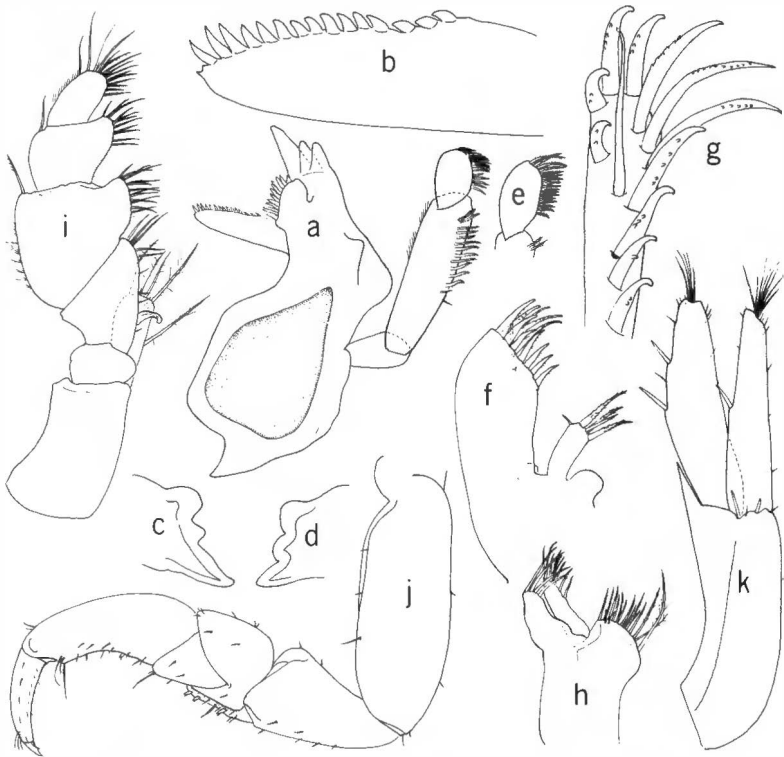


FIG. 2.—*Mexilana saluposi*: a, right mandible; b, molar of left mandible; c-d, incisors of left and right mandibles; e, distal segment of mandibular palp; f, maxilla 1; g, maxilla 1, chewing surface; h, maxilla 2; i, right maxilliped; j, pereopod 1; k, uropod.

Russell, 3 (USNM), 2 (The Museum, Texas Tech University); type locality, taken in late 1972 by Horst Wilkens, 8 (Zoologisches Museum, Hamburg, West Germany).

Diagnosis.—With the characteristics of the genus.

Description.—Body slender, slightly more than three times as long as wide; length about 12 millimeters. Head rounded anteriorly; posterolateral margins overlapped slightly by anterolateral lobes of pereonite 1; frontal margin raised into ridge, a second ridge running from frontal ridge to base of antenna 2. Frontal lamina slightly more than twice as long as wide; apex pointed in lateral view, rounded in ventral view.

Pereonites 1 and 5 to 7 subequal in length (measured laterally); pereonites 2 to 4 subequal in length, somewhat shorter than other pereonites. Pereonites 2 to 7 each with transverse impression across

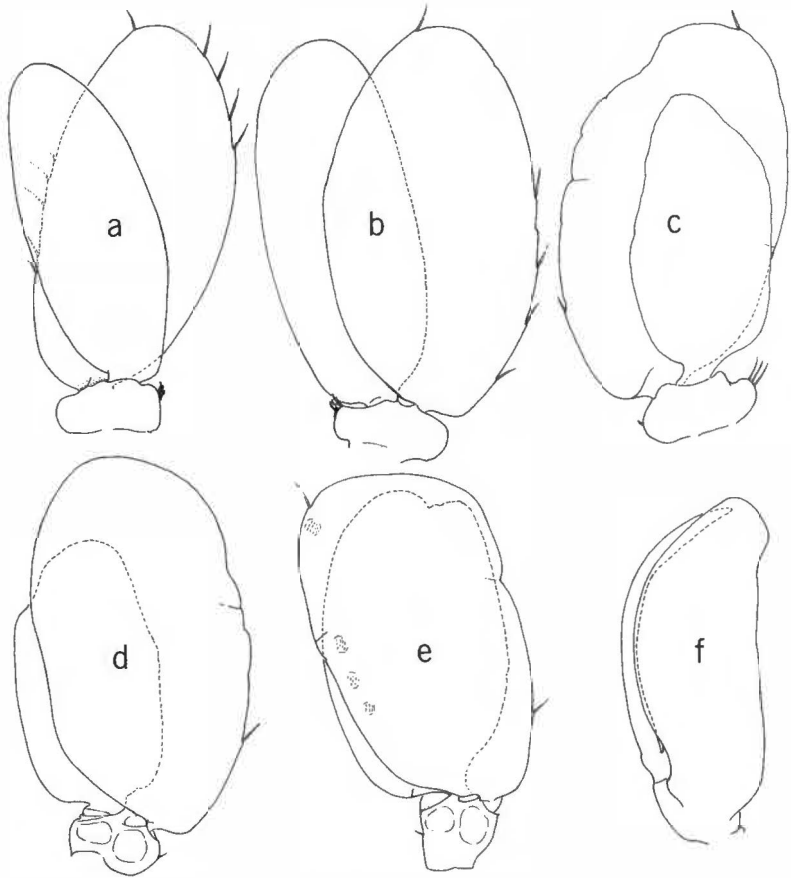


FIG. 3.—*Mexilana saluposi*: a-e, pleopods 1-5, female; f, endopod of pleopod 2, male.

anterior third. Coxae with low carinae; posteroventral corners rounded in coxae 1 and 2, produced into progressively longer points in coxae 3 to 7; coxa 7 reaching posterior margin of pleonite 3. Pleonites decreasing in length posteriorly; epimera of pleonites 1 to 3 acutely produced. Telson ovate, about as long as width at base, armed with scattered submarginal setae, but without marginal spines.

Antenna 1 nearly reaching posterior margin of pleonite 2; flagellum 18 to 20-merous, flagellar segment 4 and succeeding segments each bearing esthete. Antenna 2 reaching midlength of pereonite 7; segments of peduncle successively longer; flagellum 25 to 30-merous.

Incisors of mandibles similar except posterior tooth longer on left incisor; left lacinia with 11 spines, right lacinia with 13 spines. Left

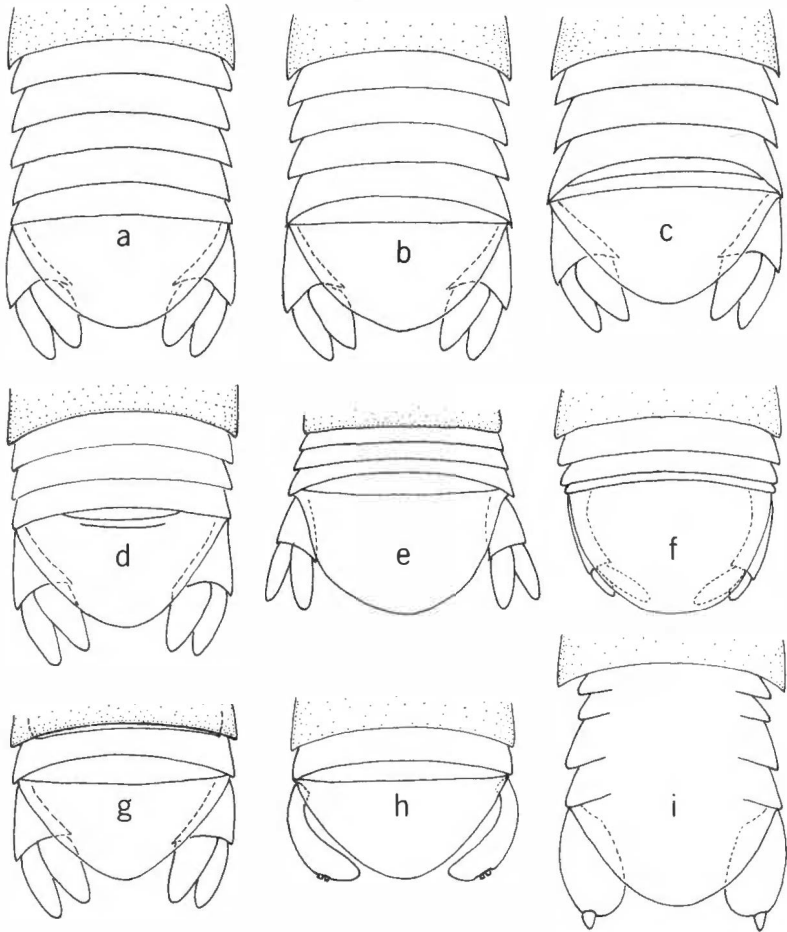


FIG. 4.—Diagrams of types of pleonal segmentation in the Cirolanidae. For explanation see text.

and right molars with 15 and 16 spines, respectively. Segment 2 of palp about 2.5 times as long as segment 1, with row of 12 to 13 pectinate spines on distal half; segment 3 slightly more than half as long as segment 2, with about 17 pectinate setae.

Exopod of maxilla 1 with 11 spines, seven external (three long and four shorter), two internal, and two terminal; long seta inserted between spines at about midlength of gnathal surface. Endopod with three circumplumose spines, a slender seta, and a subterminal setule. Maxilla 2 with four and nine setae on palp and exopod, respectively; endopod with 16 setae, two of them much shorter than others. Maxil-

liped with rather sparse setation; endite with one retinaculum.

Pereopod 1 rather slender; merus with three blunt spines on posterior margin; carpus and propus each with one spine; "dactyl organ" with three setae. Pereopod 2 prehensile, more slender than pereopod 1. Pereopods 3 to 7 slender, ambulatory, increasing in length posteriorly.

Pleopods with a few scattered, naked, short setae on exopods as shown in Fig. 3. Endopod of male pleopod 2 with appendix masculina arising near base of endopod, not quite reaching apex of endopod, gently curved, apex pointed, unarmed. Pleopod 5 with a few scurfy bosses near medial margin of exopod.

Uropods with narrow subequal rami, slightly shorter than protopod. Exopod with one spine, endopod with two spines on medial margin. Each ramus with tuft of apical setae.

Etymology.—The specific name *saluposi* is a contraction of the name of the Mexican state of San Luis Potosí.

Relationships.—As Monod (1930, 1972) has pointed out, relationships within the family Cirolanidae are not yet clearly established, despite the attention given to this family by such eminent carcinologists as Hansen (1890), Racovitza (1912), and Monod (1930). Among the characters that these authors found most useful for discriminating cirolanid genera are the segmentation of the pleotelson and the segmentation and armature of the pleopods. The distinctive nature of these two characters in the Cueva del Huisache cirolanid supports the establishment of a new genus for this isopod.

The different patterns of pleonal segmentation found in the Cirolanidae are shown diagrammatically in Fig. 4. These fall into nine types, listed below with their component genera in order of increased fusion of pleonites.

- a. *Annina*, *Anopsilana*, *Bathynomus*, *Branchuropus*, *Cirolanides*, *Eurydice*, *Exciorolana*, *Paracirolana*, *Pontogelos*, *Sphaeromides*
- b. *Antrolana*, *Cirolana*, *Conilera*, *Conilorpheus*, *Haptolana*, *Metacirolana*, *Neocirolana*, *Parabathynomus*, *Troglocirolana*, *Typhlocirolana*
- c. *Creaseriella*, *Speocirolana*
- d. *Mexilana*
- e. *Gnatholana*, *Pseudaega*, *Saharolana*
- f. *Skotobaena*
- g. *Colopisthus*
- h. *Sphaerolana*
- i. *Faucheria*

Assuming that the reduction of pleonites is a derived condition, the cirolanid pleon may have evolved in a series of steps paralleling

those in Fig. 4. Reduction of the lateral margins ($a \rightarrow b$, $f \rightarrow g$) would precede fusion of the posterior pleonite with the pleotelson. Partial fusion could occur as in d and i with incomplete sutures indicating the partly fused somites. The condition in the pleon of *Mexilana* (d) could have been derived from that in two other Mexican genera, *Creaseriella* and *Speocirolana* (c).

The pleopods of many Cirolanidae have not been described in detail, but as far as is known, no cirolanid has pleopods with segmentation and setation matching that of *Mexilana*. In *Creaseriella* and *Speocirolana*, all the exopods and the endopods of pleopods 1 and 2 have plumose marginal setae, and the exopods of pleopods 3 to 5 are each divided by a transverse suture.

Remarks.—Cueva del Huisache harbors a remarkable assemblage of troglobitic isopods, thus far unknown elsewhere. In addition to *Mexilana saluposi*, these include two recently described species of the asellid genus *Mexistenasellus*, *M. parzefalli* and *M. wilkensi* (Magniez, 1972, 1973), and an apparently undescribed anthurid isopod. All four isopods were present in the Russell collection; the Wilkens collection included the first three but lacked the anthurid.

ACKNOWLEDGMENTS

I am grateful to Mr. James R. Reddell and Dr. Guy Magniez for sending me the specimens of *Mexilana* collected by Mr. Russell and Dr. Wilkens. Dr. Fenner A. Chace, Jr. kindly reviewed the manuscript.

LITERATURE CITED

- HANSEN, H. J. 1890. Cirolanidae et familiae nonnullae propinque Musei Hanniense. Vidensk. Selsk. Skr., 6 Raekke, Naturvidensk og Mathem, 5:237-426, pls. 1-10.
- MAGNIEZ, G. 1972. Deux *Stenasellidae* cavernicoles nouveaux de l'Amérique centrale: *Mexistenasellus parzefalli* n. sp. et *Mexistenasellus wilkensi* n. sp. (*Crustacea Isopoda Asellota*). Int. J. Speleol., 4:19-31.
- . 1973. Description du mâle de *Mexistenasellus parzefalli* (*Crustacea Isopoda Asellota* cavernicole du Mexique) et observations sur cette espèce. Int. J. Speleol., 5:163-170.
- MONOD, T. 1930. Contribution à l'étude des "Cirolanidae." Ann. Sci. Nat., Zool. Biol. Animale, (10) 13:129-183.
- . 1972. Contribution à l'étude de la grotte de Sof Omar (Éthiopie méridionale). No. 3—Sur une espèce nouvelle de Cirolanidé cavernicole, *Skotobaena mortoni* (Crust., Isopoda). Ann. Spéléol., 27:205-220.
- RACOVITZA, E. G. 1912. Cirolanides (première série). Biospeologica 27. Arch. Zool. Expér. Gén., (5) 10:203-329, pls. 15-28.

Address of author: *Division of Crustacea, Smithsonian Institution, Washington, D.C. 20560. Received 10 May, accepted 15 August 1974.*

**PUBLICATIONS OF THE MUSEUM
TEXAS TECH UNIVERSITY**

Two publications of The Museum of Texas Tech University are issued under the auspices of the Dean of The Graduate School and Director of Academic Publications, and in cooperation with the International Center for Arid and Semi-Arid Land Studies. Shorter research papers are published as Occasional Papers, whereas longer contributions appear as Special Publications. Both are numbered separately and published on an irregular basis.

Institutional libraries interested in exchanging publications may obtain the Occasional Papers and Special Publications by addressing the Exchange Librarian, Texas Tech University, Lubbock, Texas 79409. Individuals may purchase separate numbers of the Occasional Papers for 50 cents each through the Exchange Librarian. Remittance must be enclosed with request.