

Dup.

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

XILITLONISCUS, A NEW GENUS FOR THE MEXICAN
TROGLOBITIC ISOPOD, *CORDIONISCUS LAEVIS*
RIOJA (ONISCOIDEA: TRICHONISCIDAE)

BY THOMAS E. BOWMAN

Smithsonian Institution, Washington, D.O. 20560

In 1956 the late Enrique Rioja described a new species of trichoniscid isopod, *Cordioniscus laevis*, from Cueva de la Hoya, near Xilitla, San Luis Potosi, Mexico. Previously only two species of *Cordioniscus* had been known: *C. stebbingi* (Patience), occurring in greenhouses in Europe and the United States, but apparently native to eastern Spain (Vandel, 1952); and *C. africanus* Vandel (1955) from Oran, Algeria. *Cordioniscus laevis* was thus the first native American species of *Cordioniscus* and the most northern Western Hemisphere member of Vandel's superfamily Styloniscoidea, predominately a Southern Hemisphere group not known previously north of Costa Rica (Vandel, 1952).

Unfortunately Rioja had only a single female of his new species, and his decision to place it in *Cordioniscus* was based on the short third segment of antenna 1, the armature of the inner ramus of maxilla 1, and the number of mandibular setae. He was unable to use the structure of the male pleopods 1 and 2, which are more fundamental characters.

I received recently from James Reddell, of the Texas Speleological Survey, male and female isopods from two caves near Xilitla that appear to belong to Rioja's *Cordioniscus laevis*. However, from the structure of the male pleopods 1 and 2, Rioja's species clearly belongs in the superfamily Trichoniscoidea rather than Styloniscoidea and in Vandel's first, and most primitive, division of the family Trichoniscidae. Because it cannot be placed in any existing genus, I am proposing for it the following new genus:

Xilitloniscus, new genus

In general aspect and in most characters like *Protrichoniscus* Arcangeli (1932), but differing as follows: Antenna 1, 2d segment nearly as long as 3rd. Right mandible with 1 seta between incisor and molar and 1 seta on molar. Left mandible with 2,-3 setae between incisor and molar and 1 seta on molar. Pereopod 7, distal setae of setal fringe along posterior margin of propodus not clearly forming a tuft. Male pleopod 1 without endopod; exopod with plumose terminal seta. Exopod of male pleopod 2 separated from basis by suture. Type-species, *Cordioniscus laevis* Rioja. Gender masculine.

Xilitloniscus laevis (Rioja)

Figs. 1-30

Cordioniscus laevis Rioja, 1956: 447-451, Figs. 1-13; Mulaik, 1960: 98-99, Figs. 513-526 [copy of Rioja's description and illustrations].

Material examined: MEXICO, **SAN LUIS POTOSI STATE:** Cueva de la Selva, 8 km W of Xilitla, in pools: 26 November 1963, 2 ♀, 9, collected by Terry Raines; 25 November 1964, 4 ♀, 2, collected by Terry Raines and Bill Bell. Cueva de la Porra, 10.9 km NE of Xilitla, in small pool 37 m from entrance, 3 ♀, 9, 1 ♂, collected by Bill Russell.

Description: Length up to 12 nun. Pereonites without tubercles on dorsal posterior margins. Telson with 2 minute apical setae. Penis gradually tapering to narrow apex bearing slender seta. Distal segment of antenna 1 with 11 slender sensory filaments. Antenna 2 reaching posterior margin of pereonite 3; flagellum 8-merous.

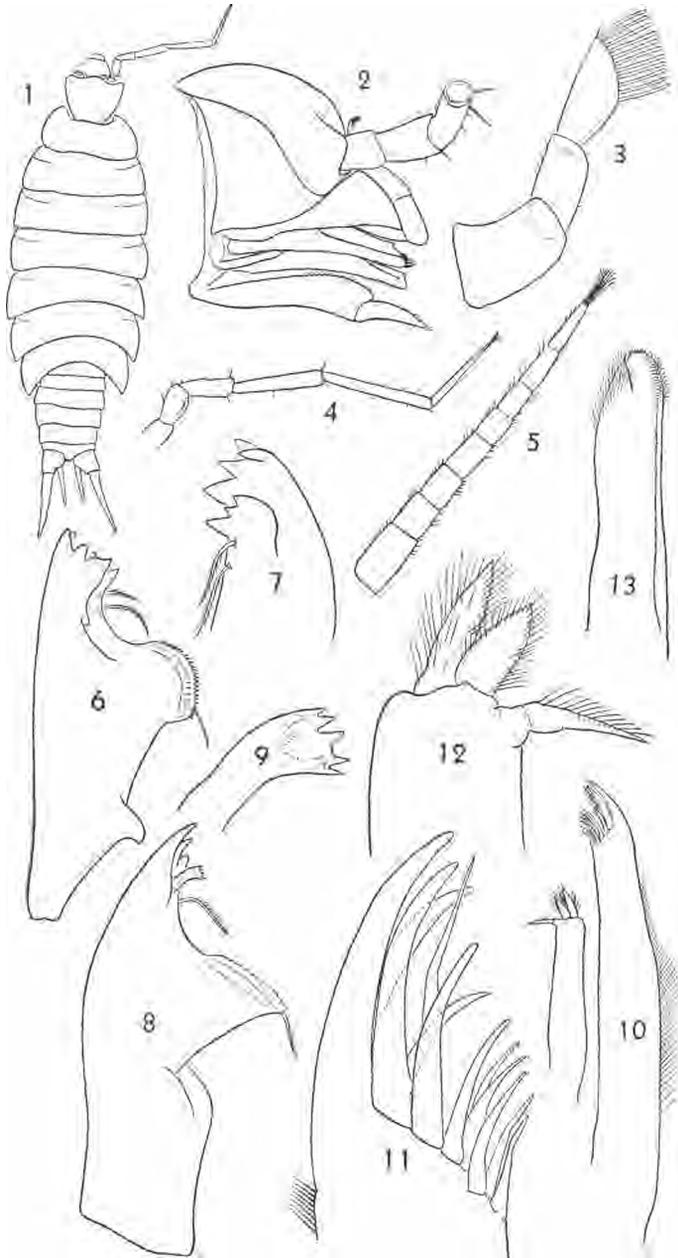
Incisor of left mandible with 4 teeth, lacinia mobilis with 3 teeth; 2 plumose setae between incisor and molar; molar with 1 seta. Incisor of right mandible with 3 teeth, lacinia a narrow cylinder with distal margin divided into about 9 teeth; 1 plumose seta between incisor and molar and 1 on molar.

Inner ramus of maxilla 1 armed at apex with 2 blunt terminal setae, the lateral one slightly longer, and a slender medial seta subequal to longer blunt seta. Outer ramus with 6 large lateral and 6 small medial spines; 1 of large spines slender, with angular bend in middle.

Endite of mandible with long robust terminal spine, flanked by 2 short blunt spines and medially with a slender arcuate spine.

Posterior margin of carpus of pereopods 1-2 bearing strong spines

FIGS. 1-13. *Xilitloniscus laevis* (Rioja). Fig. 1, dorsal view. Fig. 2, head, lateral. Fig. 3, antenna 1. Fig. 4, antenna 2. Fig. 5, antenna 2, flagellum. Fig. 6, left mandible. Fig. 7, incisor of left mandible. Fig. 8, right mandible. Fig. 9, lacinia mobilis of right mandible. Fig. 10, maxilla 1. Fig. 11, outer ramus of maxilla 1. Fig. 12, inner ramus of maxilla 1. Fig. 13, maxilla 2.



with apical prongs; propodus with similar but shorter spines. Medial surface of carpus and propodus with delicate overlapping triangular scales, visible only with high magnification; with low magnification bases of scales give crosshatched appearance to scaled areas.

Propodus of pereopod 7 with fringe of setae along distal % of posterior margin; distal setae longer but not ~~forming~~ forming a tuft so clearly as in *Protrichoniscus*. Pereopod 6 shorter than pereopod 7, with shorter setae on posterior margin of propodus.

Endopod apparently absent from male pleopod 1. Basis rotund laterally, slenderer medially. Exopod oblong in proximal 4/7, triangular in distal 3/7; narrow apex bearing long plumose seta; medial margins closely apposed, forming groove to receive penis.

Exopod of male pleopod 2 separated from basis by suture, oval, with lobe extending over base of endopod. Endopod well developed; distal segment with blunt tip hollowed on one side.

Exopods of pleopods 3-5 broadly subtriangular, membranous. Endopods narrow, pustulate.

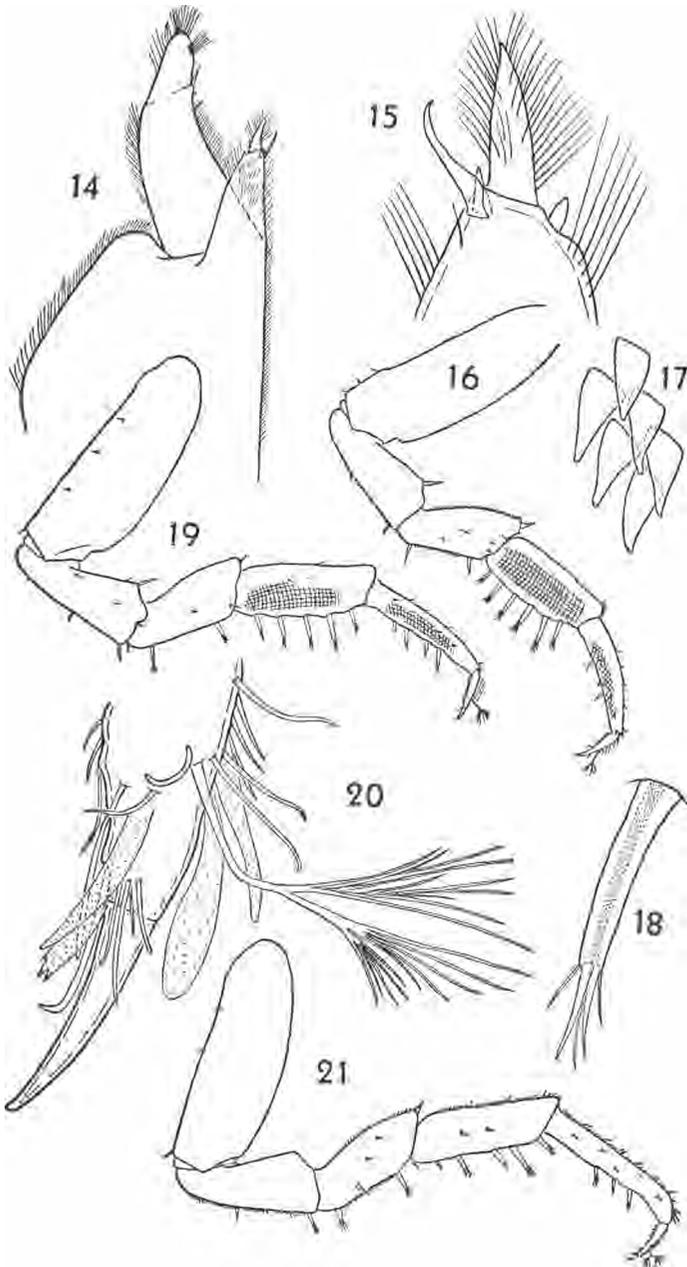
Uropods with narrow rami; exopod 1.5 times as long as endopod, both ending in tufts of setae.

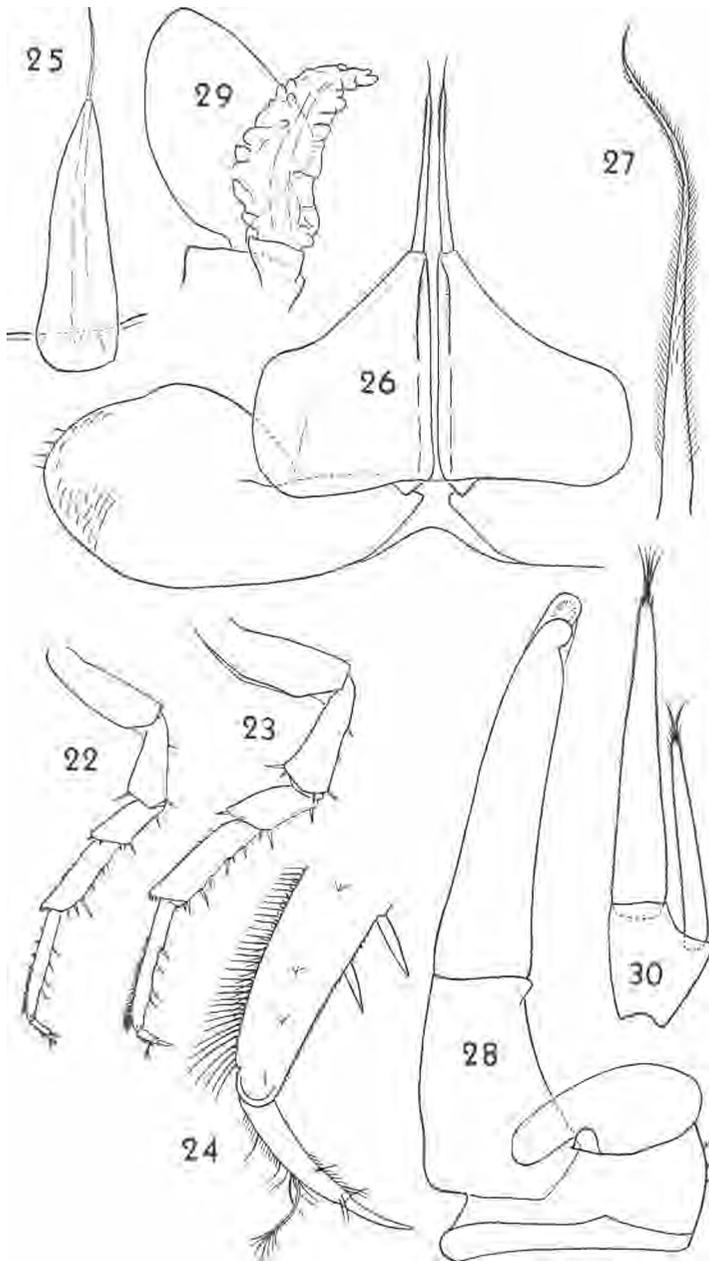
Relationships: *Xilitloniscus* is most closely related to *Protrichoniscus*, the only other genus of the family Trichoniscidae in which the endopod of male pleopod 1 is greatly reduced or absent. The terminal seta on the exopod of male pleopod 1 is not present in *Protrichoniscus*, as far as is known. Unfortunately the male pleopods were not described in Mulaik's (1960) two species, *P. palmitensis* and *P. potosinus*. Of the six known species of *Protrichoniscus*, five are known only from Mexican caves, and the type-species, *P. heroldi* Arcangeli (1932), occurs in California (Mulaik and Mulaik, 1942, 1943).

Rioja (1955) reviewed the 3 Mexican species then known and provided a key to the 4 known species. More recently Mulaik (1960) reviewed the Mexican species, adding 2 new species, and gave a key to the Mexican species. Mulaik removed *Protrichoniscus* from the family Trichoniscidae and placed it in the Styloniscidae, because of the molar seta in the right mandible of *Protrichoniscus*. This action ignores the fundamental difference in the form and musculature of male pleopod 1, which led Vandell (1952) to establish the superfamilies Styloniscoidea and Trichoniscoidea. Vandell (1953) examined specimens of *Protrichoniscus heroldi* and found the male pleopod 1 to be of the "type trichoniscien" rather than the "type styloniscien." He placed *Protrichoniscus* in

→

Figs. 14-21. *Xilitloniscus laevis* (Rioja). Fig. 14, maxilliped. Fig. 15, endite of maxilliped. Fig. 16, pereopod 1, medial view. Fig. 17, scales on propodus of pereopod 1. Fig. 18, spine on carpus of pereopod 1. Fig. 19, pereopod 2, medial view. Fig. 20, distal end of dactyl of pereopod 2. Fig. 21, pereopod 3, medial view.





the first, or most primitive tribe (called "Division" in 1960) of the subfamily Trichoniscinae. To the genera belonging to this Division we must now add *Xilitloniscus*.

Ecology: *Xilitloniscus laevis* is a blind troglobite now known from three caves in the vicinity of Xilitla. Rioja's specimen was collected from the cave wall, while the specimens sent to me were found in small pools inside the caves.

LITERATURE CITED

- ARCANGELI, ALCESTE. 1932. Isopodi terrestri raccolti dal Prof. Silvestri nel Nord-America. Boll. Lab. Zool. Gen. Agr. R. 1st. Super. Agr. Portici 26: 121-141.
- MULAİK, STANLEY B. 1960. Contribucion al conocimiento de los isopodos terrestres de Mexico (Isopoda, Oniscoidea). Rev. Soc. Mex. Hist. Nat. 21 (1): 79-220, 36 pls.
- MULAİK, STANLEY B. AND DOROTHEA MULAİK. 1942. New species and records of American terrestrial isopods. Bull. Univ. Utah, vol. 32, no. 6, pp. 1-11.
- _____. 1943. New Texas terrestrial isopods with notes on other species. Bull. Univ. Utah, vol. 34, no. 3, pp. 1-15.
- RIOJA, ENRIQUE. 1955. Trichoniscidae cavernícolas de Mexico. Rev. Soc. Mex. Entomol. 1 (1-2): 39-62.
- _____. 1956. Estudios carcinológicos. XXXIV. Dos nuevos isópodo cavernícolas de la Sierra Madre Oriental (Region de Xilitla), Mexico. An. Inst. Biol. Méx. 26 (2): 447-457.
- VANDEL, ALBERT. 1952. Les Trichoniscides (Crustacés-Isopodes) de l'Hémisphère Austral. Leur place systématique. Leur intérêt biogéographique. Mém. Mus. Hist. Nat. Paris, Ser. A, Zool. 6 (1): 1-116.
- _____. 1953. Remarques systématiques, morphologiques et biogéographiques sur un groupe de Trichoniscidae Nord-Atlantiques. (Crustacés; Isopodes terrestres). Bull. Mus. Nat. Hist. Nat. Paris, Ser. 2, 25 (4): 368-375.
- _____. 1955. La faune isopodique cavemicole de l'Afrique du Nord (Berbérie). Notes Biospéologiques 10: 64-80.
- _____. 1960. Isopodes terrestres (Première Partie). In Faune de France 64: 416 pp., Paris.

FIGS. 22-30. *Xilitloniscus laevis* (Rioja). Fig. 22, pereopod 6. Fig. 23, pereopod 7. Fig. 24, distal end of pereopod 7. Fig. 25, penis. Fig. 26, ♂ pleopod 1. Fig. 27, terminal seta of exopod of ♂ pleopod 1. Fig. 28, ♂ pleopod 2. Fig. 29, pleopod 5. Fig. 30, uropod.

