

THE ASSIGNMENT OF THE TEXAS TROGLOBITIC WATER
SLATER *CAECIDOTEA PILUS* TO THE GENUS
LIRCEOLUS, WITH AN EMENDED
DIAGNOSIS OF THE GENUS
(CRUSTACEA: ISOPODA: ASELLIDAE)

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Abstract.—*Caecidotea pilus* is redescribed and assigned to *Lirceolus*. This genus, now containing two species, remains endemic to Texas. The addition of *C. pilus* requires emendation of *Lirceolus* to broaden the concept of the genus, especially in the characteristics of the mouthparts.

Until recently, all of the known subterranean asellid isopods of Texas were assigned to the widespread genus *Caecidotea*. In 1976 Bowman and Longley redescribed *Caecidotea smithii* from newly collected specimens from the artesian well at San Marcos, Texas. This species possessed a number of unusual morphological characters that persuaded Bowman and Longley to place it in a new genus, *Lirceolus*, so named for the similarity of the third pleopods of *Lirceus* and *Lirceolus*.

Lewis (1982) pointed out the morphological similarities of some of the other Texas asellids to *Lirceolus* and suggested the possibility that under scrutiny, additions might be made to the genus. Of the three other troglobitic asellids from Texas (all described by Steeves 1968), *Caecidotea reddelli* is clearly assigned to the correct genus. On the other hand the illustrations of *C. pilus* and *C. bisetus* by Steeves (1968) were suggestive of *Lirceolus* in the unarmed gnathopod, elongate first pleopod, and the sparsely setose exopod of the second pleopod. When examined, *C. bisetus* was found to have the usual *Caecidotea*-type transverse suture across the exopod of the third pleopod. *Caecidotea pilus* possessed not only an oblique suture, but other characteristics which necessitate its transference to *Lirceolus*. However, some of the unusual characteristics of *Lirceolus smithii* included in the diagnosis of the genus by Bowman and Longley (1976) do not apply to *L. pilus*; hence an emended diagnosis is provided here.

Several illustrations are included herein to support the placement of *L. pilus* in *Lirceolus*. Steeves (1968) illustrated the male gnathopod, pleopod 1 and pleopod 2, plus the endopod tip of the latter. Except where new details have been revealed, Steeves' drawings adequately characterize the species and are not repeated here.

Lirceolus Bowman and Longley, 1976

Diagnosis.—Eyeless, unpigmented, maximum length about 4 mm. Head without lateral incisions or rostrum. Mandible with 3-merous palp. Maxilla 1, outer lobe with 10-13 spines; inner lobe with 5-8 plumose setae. Pereopod 1 propodus palm without processes. Pleopod 1 slender, elongate, distal segment oval with sparse non-plumose setation. Pleopod 2, exopod proximal segment produced me-

dially over distal segment; distal segment without catch lobe, with longitudinal furrow on posterior surface and 0-1 setae on distal margin. Endopod with short basal spur, basal apophysis about as long as basal spur, labial spur absent. Pleopod 3 exopod with oblique suture. Pleopods 4 and 5 with exopod and endopod partly or totally fused.

Type-species.—*Asellus smithii* Ulrich, 1902.

Lirceolus pilus (Steeves)

Fig. 1

Asellus pilus Steeves, 1968:188.—Reddell and Mitchell, 1969:8, 43.—Reddell, 1970:396.—Fleming, 1973:295 (in list), 297 (in key).

Conasellus pilus (Steeves).—Henry and Magniez, 1970:356.—Mitchell and Reddell, 1971:55.

Material examined.—TEXAS: Medina Co., Valdina Farms Sinkhole, 15 mi. N. Sabinal, 12 Jan 1963, leg. J. Reddell, D. McKenzie, J. Porter, holotype ♂ (USNM 119593), allotype ♀ (USNM 119594), 1 ♂, 1 ♀ paratypes (USNM 119595).

Description.—Maximum length 3.0 mm (allotype), body slender, about 4× as long as wide. Coxae visible in dorsal view. Head about 2× as wide as long. Pleotelson about 1.3× as long as wide, sides subparallel, caudomedial lobe not evident.

Antenna 1 flagellum of about 5 segments, esthetes on distal 3 segments (♂ paratype) or 1-0-1 (♀ paratype). Mandibles with 4-cusate incisors and lacinia mobilis, palp with few plumose setae on segments 2 and 3. Maxilla 1 inner lobe with 5 plumose setae; outer lobe with 13 robust spines. Maxilliped with 3 retinacula.

Pereopod 1 propod about 3.0× as long as wide in ♂, 2.4× in ♀. Pereopod 4 sexual dimorphism slight, carpus of holotype 3.3× as long as wide, allotype 3.5×; dactyl with accessory unguis.

Pleopod 1 with 3 retinacula; exopod about 1.4× length of protopod. Pleopod 2, exopod distal segment with 1 seta; endopod tip with endopodial groove terminating in decurved beak-shaped process. Pleopod 3 as figured. Pleopods 4 and 5 exopods with single oblique suture.

Distribution.—Known only from the type-locality, Valdina Farms Sinkhole. The assignment of this species to *Lirceolus* extends the range of the genus a short distance to the west, but it remains endemic to the Balcones Fault Zone of Texas.

Relationships.—*Lirceolus pilus* is obviously closely related to *L. smithii* both morphologically and geographically. The greatest differences between the 2 species lies in the structure of their mouthparts:

	<i>L. smithii</i>	<i>L. pilus</i>
mandibles:		
lacinia/incisors	2-3 cusate	4-4 cusate
maxilla 1		
outer lobe	10 spines	13 spines
inner lobe	8 setae	5 setae

The generic relationships of *Lirceolus* remain obscure, although the addition

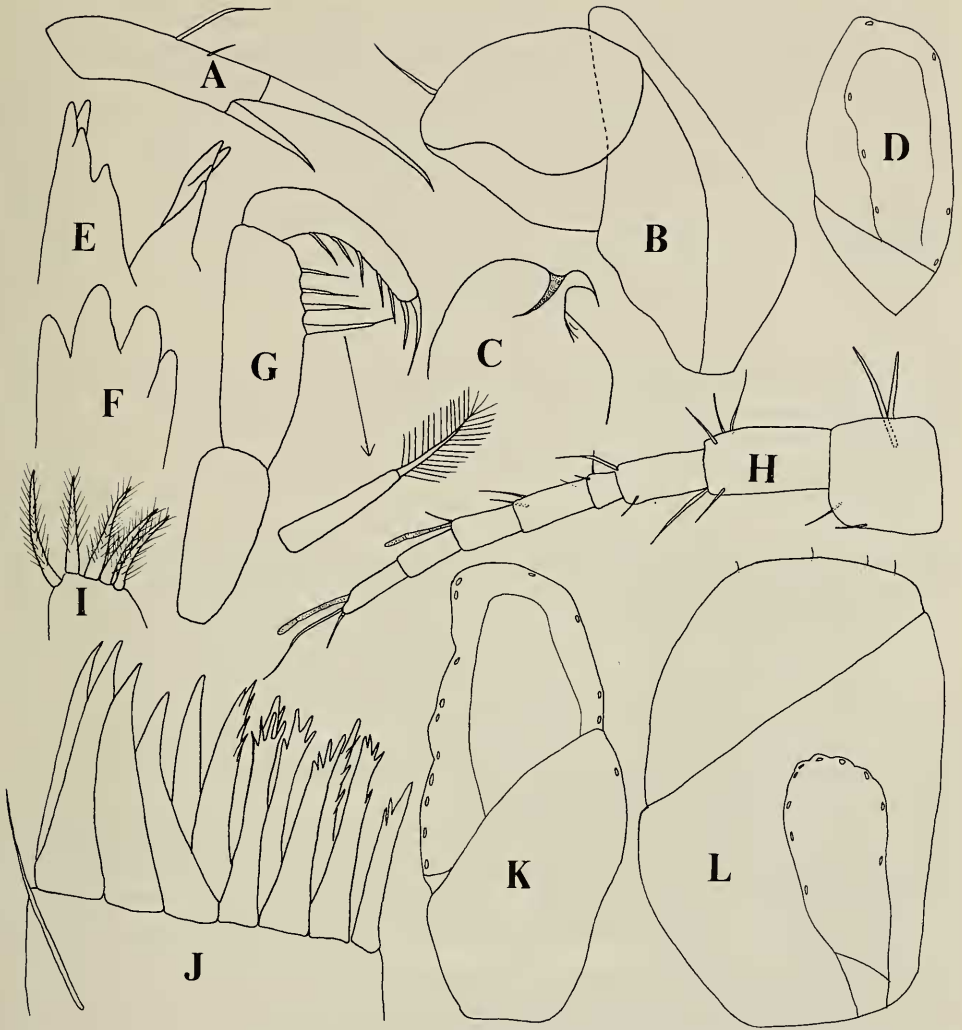


Fig. 1. *Lirceolus pilus*: A from allotype, B, C, F, G from ♂ paratype, others from ♀ paratype. A, Pereopod 4 dactyl; B, Pleopod 2, exopod; C, Same, endopod tip; D, Pleopod 5; E, Incisor and lacinia, left mandible; F, incisor, right mandible; G, Mandibular palp; H, Antenna 1; I, Maxilla 1, inner lobe; J, Same, outer lobe; K, Pleopod 4; L, Pleopod 5.

of *L. pilus* lends some insight. The mouthparts of *L. pilus* are very similar to those of troglobitic *Caecidotea* both morphologically and meristically. However, the oblique suture of pleopod 3 clearly separates *Lirceolus* from *Caecidotea*. *Lirceolus* can be separated from *Lirceus* by the lack of a rostrum and the lateral incisions of the head, present in most species of *Lirceus*. A fusion of the endopod and exopod of pleopods 4 and 5 as in *L. smithii* is unknown in both *Caecidotea* and *Lirceus*, although in *Calasellus*, pleopod 5 exopod is greatly reduced or absent (Bowman 1981).

The fusion of the pleopods reported in *L. smithii* by Bowman and Longley (1976) was difficult to ascertain in *L. pilus*. In the female paratype the pleopods

appeared fused similar to those reported for *L. smithii*, but the fusion looked much less extensive in the male paratype. The unusual fleshy consistency of the pleopods in *Lirceolus pilus* (and *Lirceolus* in general) precludes an adequate description from the few specimens available. Moreover, all specimens were incomplete, lacking the flagella of the second antennae, the uropods, and most of the pereopods. Of the two males and two females in the collection, only one individual of each sex retained a single fourth pereopod to compare for sexual dimorphism.

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