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*TRICHOPETALUM SUBTERRANEUM*, NEW SPECIES  
FROM KENTUCKY, NEW RECORDS AND A KEY TO  
THE GENUS (DIPLOPODA; CHORDEUMIDA;  
TRICHOPETALIDAE)

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The margins of the range of the family Trichopetalidae pass through Nova Scotia, Colorado, and San Luis Potosí (Causey, 1963). The greatest number of taxa are in northeastern North America, where there are both epigeal and troglobitic representatives. *Trichopetalum* Harger, the most widely distributed genus, is unusual in that its range is relatively large for a millipede genus and the number of species is small. It is probably ancestral to the troglobitic genera *Scoterpes* Packard and *Zygonopus* Ryder.

Genus *Trichopetalum* Harger

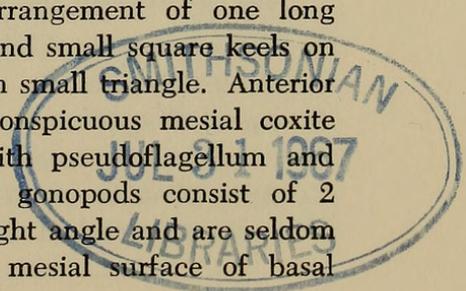
*Trichopetalum* Harger, 1872, Amer. Jour. Sci. Arts 4: 117. Cook and Collins, 1895, Ann. New York Acad. Sci. 9: 62-63. Chamberlin and Hoffman, 1958, U. S. Nat. Mus. Bull. 212: 102.

*Type-species: Trichopetalum lunatum* Harger.

*Range:* North America from Nova Scotia west to Wisconsin, Missouri, and Louisiana; absent from the Southeastern States.

*Species:* 4. This omits *T. montis* Chamberlin, which I believe referable to *Tynopus*.

*Diagnosis:* Depigmented trichopetalids 5 to 8 mm long, with 28 body segments, pigmented ocelli in lunate arrangement of one long and one short series or (rarely) of one series, and small square keels on which long, fine segmental setae are arranged in small triangle. Anterior gonopods consist of large coxal region with conspicuous mesial coxite and sometimes ectal coxite, and telopodite with pseudoflagellum and thin lamella; sternum is X-shaped. Posterior gonopods consist of 2 elongated articles which articulate at about a right angle and are seldom thicker than walking legs; gland opening on mesial surface of basal



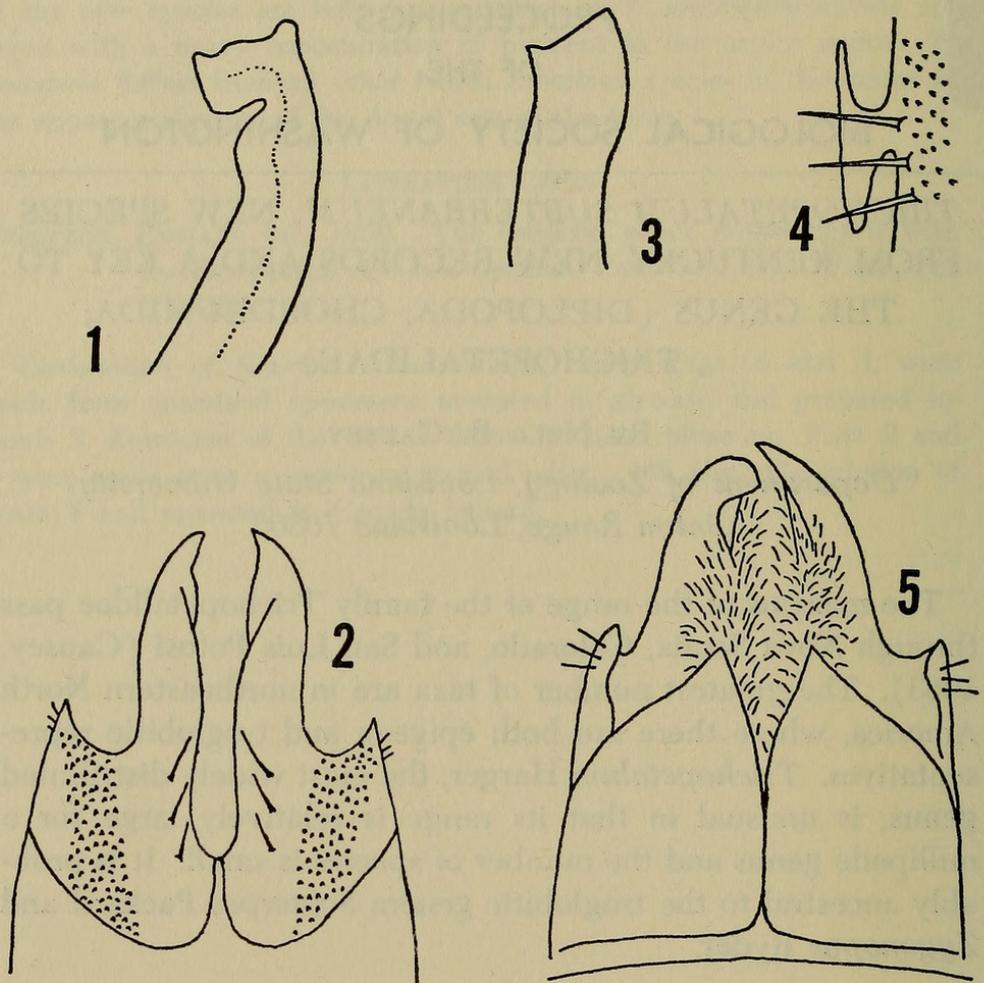


FIG. 1. *Trichopetalum lunatum*, apex of coxite of anterior gonopod of topotype. FIGS. 2-5. *T. subterraneum*, paratype. 2, anterior gonopods, anterior view. 3, apex of main coxite of anterior gonopod, ectal view. 4, ectal coxite of anterior gonopod, subectal view. 5, anterior gonopods, caudal view.

article; distal article usually ends in spine. Pregonopodal legs bear no special lobes. Coxae of legpairs 10 and 11 have gland openings.

KEY TO SPECIES OF *Trichopetalum* BASED ON ANTERIOR GONOPODS

1. With 2 coxites, of which mesial is much larger than ectal ..... 2
- With only 1 coxite, which is in mesial position ..... 3
2. Apex of main coxite divided into 2 long, subequal prongs; ectal coxite long, resembling prong of main coxite ..... *uncum*
- Apex of main coxite ends in 2 angles (Fig. 3); ectal coxite short, acute, attached by short band, and turned caudad (Fig. 4) ..... *subterraneum*, n. sp.

3. Apex of coxite varied, with 2 or 3 minute shallow emarginations  
(Fig. 1) ..... *lunatum*  
Apex of coxite conspicuously U-shaped, with one prong wider than  
other ..... *cornutum*

*Trichopetalum cornutum* Cook and Collins

*Trichopetalum cornutum* Cook and Collins, 1895, Ann. New York Acad. Sci. 9: 66, Figs. 46-49. Causey, 1961, Proc. Biol. Soc. Washington 64: 119.

*New records:* INDIANA. Porter Co., Dune Acres, Cowles Bog, 16 April 1960, W. Suter. KENTUCKY. Wolfe Co., Pineville, 12 March 1966, B. Branson. MICHIGAN. Berrien Co., Lakeside, Warren Woods, 14 January 1960, W. Suter. TENNESSEE. Blount Co., Cades Cove, 1 April 1960, W. Suter.

*Trichopetalum lunatum* Harger

Fig. 1

*Trichopetalum lunatum* Harger, 1872, Amer. Jour. Sci. Arts 4: 118, pl. 11, Figs. 1-4. Cook and Collins, 1895, Ann. New York Acad. Sci. 9: 63, Figs. 52, 53. Jawlowski, 1939, Frag. Faun, Mus. Zool. Pol., Warszawa 4: 151-152, Fig. 1. Causey, 1951, Proc. Biol. Soc. Washington 64: 119, Figs. 6-8. Chamberlin and Hoffman, 1958, U. S. Nat. Mus. Bull. 212, p. 102.

*Trichopetalum* ? *lunatum*, Palmen, 1952, Ann. Zool. Soc. Vanamo 15: 8-11, Figs. 10-17.

*Trichopetalum album* Cook and Collins, 1895, Ann. New York Acad. Sci. 9: 64-66, pls. 11-111, Figs. 22-29, 36-45. Chamberlin and Hoffman, 1958, U. S. Nat. Mus. Bull. 212, p. 102. NEW SYNONYMY.

*Holotype:* Peabody Museum of Natural History, Yale University, if extant.

*Type-locality:* New Haven, New Haven Co., Connecticut.

*Range:* Southwestern Newfoundland to northeastern Wisconsin and south to Pennsylvania.

I have examined specimens from the type-locality, eastern Pennsylvania, and Wisconsin and have found no reason for maintaining *lunatum* and *albans* as separate species. The apical region of the coxite (erroneously referred to as the telopodite by some authors) of the anterior gonopods of a topotype is shown in Fig. 1; it varies minutely, as shown by Cook and Collins (*op. cit.*, Figs. 36-41). Likewise, the uneven margin of the denticulate lamella varies. This lamella, which was erroneously shown by Cook and Collins (*op. cit.*, Fig. 43) on the sternum of the posterior gonopods, always comes out with the anterior gonopods and appears to be part of the telopodite. As in other members of the family, there is no coxite on the posterior gonopods.

**Trichopetalum subterraneum** new species

Figs. 2-5

*Diagnosis:* Near *T. lunatum*, differing especially in that the anterior gonopods have a short, acute, ectal coxite.

*Holotype:* Male. Length about 6 mm. Ocelli black, 6, 2 in lunate arrangement. Article 5 of antennae thickest and longest. Legpairs 3 through 7 not thickened; 10 and 11 have coxal glands. Shoulders of most body segments square, with 2 setae on ectal margin and a third seta just mesiad of more anterior of marginal setae, forming a right triangle.

Mesial coxite of anterior gonopods long and gently curved caudad; apex, viewed ventrally, acute and twisted slightly toward homologue (Fig. 2); viewed laterally, apex is squarish (Fig. 3). Ectal coxite (Fig. 4) short, attached by narrow band, turned caudad; 3 large setae and numerous minute setae near coxite. 3 stout setae in vertical series on mesial region of coxa; broad band of minute setae ectad of stout setae. Telopodite, viewed caudally (Fig. 5), consists of simple, thickly branched pseudoflagellum almost as long as main coxite and of wide, thin lamella acute at apex and even along margins.

Posterior gonopods consist of 2 long articles about as thick as walking legs; basal article has conspicuous pore on mesial surface and is well separated from homologue; distal article ends in long, slender spine.

*Variations:* Several paratypes differ from the holotype in the arrangement and number of ocelli. 6, 2 is the most frequent number of ocelli. I have also found 6, 1, only 6, and only 5. If there is only one row of ocelli, 2 in middle are large, suggesting fusion with short row.

*Type-locality and deposition of specimens:* Slacks (= Bryants) Cave, Scott Co., Kentucky. 9 males, including holotype, and 11 females, collected 18 January 1963 and 1 February 1965 by T. C. Barr, Jr., and John R. Holsinger, respectively. Holotype and 4 paratypes of each sex are in U. S. Nat. Mus. and remaining specimens are in my collection.

*Ecology:* All known specimens are from a cave in northcentral Kentucky about 15 miles north of Lexington. They were found up to a mile from the entrance, principally on rotting wood in a log jam. Both troglobites (*Islandiana* Braendergaard, spiders; *Pseudanophthalmus* Jeanel, beetles) and trogliphiles (*Linopodes* Koch), as well as a number of troglonexes and accidentals were found in the same area of the cave. I suspect that this species is a troglophile. The collectors have carefully searched for millipedes in numerous caves in Kentucky and adjacent states and found many of these caves with *Scoterpes* and *Zygonopus* (all troglobites) and a few with *Trichopetalum unicum* (a troglophile). Unfortunately, the epigeal sites in this area have not been collected as assiduously for millipedes as the caves have been.

*Trichopetalum uncum* Cook and Collins

*Trichopetalum uncum* Cook and Collins, 1895, Ann. New York Acad. Sci. 9: 66, Fig. 51. Causey, 1951, Proc. Biol. Soc. Washington 64: 119.

*New records:* OKLAHOMA. Muscogee Co., Ft. Gibson, Dresser Cave. MISSOURI. Dade Co., Carrico Cave, 31 March 1965. Stone Co., Marvel Cave, 2 April 1959, T. C. Barr, Jr. KENTUCKY. Edmonson Co., Mammoth Cave Nat. Pk., Mammoth Cave Hollow, 25 November 1960, D. Reichle.

## LITERATURE CITED

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Causey, Nell B. 1967. "Trichopetalum subterraneum, new species from Kentucky, new records and a key to the genus (Diplopoda; Cordeumida; Trichopetalidae)." *Proceedings of the Biological Society of Washington* 80, 117–121.

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