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A Troglobitic Staphylinid from Mexico (Coleoptera, Staphylinidae, Paederinae)

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With very few exceptions, the staphylinids from caves recorded by Wolf (1934–1938) are not troglobites. In most cases the species associated with caves are troglonexes, troglaphiles, or merely epigean or endogenous forms (“accidentals”) incidentally found in caves (for definitions, see Barr, 1960, 1964). With only one possible exception, the eight species listed by Reddell (1966) from Texas are not troglobites. Vandel (1964, pp. 251–252) lists five troglobitic staphylinids in five different genera, four from North Africa and one from the Himalayas. Only three of these five species are completely eyeless; the other two have vestigial eyes but have other troglobitic adaptations.

James Reddell sent me an extraordinary paederine from Mine Cave in Tamaulipas, Mexico. The species is eyeless, wingless, poorly pigmented, and has numerous long, presumably tactile setae and a reduced metathorax. These troglobitic adaptations (Barr, 1960, 1964) and their presence in association with capture in a cave suggest that the species is a troglobite. This species represents the first likely troglobitic staphylinid described from the New World and one of the two in the Paederinae.

It is with distinct pleasure that I name this unique species for one of its collectors, James Reddell, who has sent me many interesting staphylinids associated with caves.

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STENOPHOLEA,¹ NEW GENUS

TYPE SPECIES: *Stenopholea reddelli*, new species, by present designation.

DIAGNOSIS: This species can be separated from all other Paederinae by the enlarged mesothoracic peritreme which is connate with the prohypomeron (fig. 4). Additional characters useful for recognition of the genus are the slender form (fig. 1), the separated gular sutures, the short, rounded fourth article of the maxillary palpus (fig. 5), the presence of the protibial ctenidia (fig. 11), the femoral spiniform process (fig. 11), the pedunculate anterior portion of the mesothorax (figs. 1, 7), the absence of compound eyes, the reduced elytra (fig. 1), and the reduced metathorax (fig. 7).

DESCRIPTION: Color yellowish brown with reddish cast to regions of greater sclerotization. Form elongate, slender (fig. 1), and subcylindrical.

Head rectangular; lateral and anterior margins broadly arcuate; posterior margin of head strongly emarginate; base of head strongly and sharply constricted to form broad, well-defined neck (fig. 1). Head width/neck width ratio, 1.64. Gular sutures separated along entire length. Mandibles sickle-shaped and denticulate (figs. 2, 3). Labrum emarginate anteriorly, anterior margin with denticles (fig. 10). Maxillary palpus with fourth article short, stout, and with apex broadly rounded; base of fourth article not so broad as apex of third (fig. 5). Labial palpus with three slender articles. Antenna long and slender. Antennomere 1 with several scattered, long, stout setae. Antennomeres 2 to 11 encircled subapically with long, stout setae; with additional shorter dense pubescence (fig. 12).

Prothorax elongate; anterior margin broadly and shallowly arcuate; lateral margin broadly and evenly arcuate and convergent to narrow, rounded base; basal angles present but weakly developed; anterior angles well developed (figs. 1, 8). Length/width ratio, 1.14. Pronotum with numerous setae; lateral marginal bead with anterior half extending onto prohypomeron (figs. 4, 8). Protergosternal suture present but with anterior portion reduced to moderately well-defined groove (fig. 4). Prohypomeron with anterior portion strongly deflexed and posterior portion moderately deflexed. Prosternum with region anterior to procoxae moderately elongate; prosternal process short and carinate. Mesothoracic peritreme large and extending from posterior margin of prosternum to posterior extent of prothorax; sclerite connate with prohypomeron except for very short separation at posterior angle (fig. 4).

¹ *Stenos*, Greek, narrow. *Pholeos*, Greek, cave. This name is meant to suggest the narrow form of the beetle and further acknowledge its cave-dwelling habit.

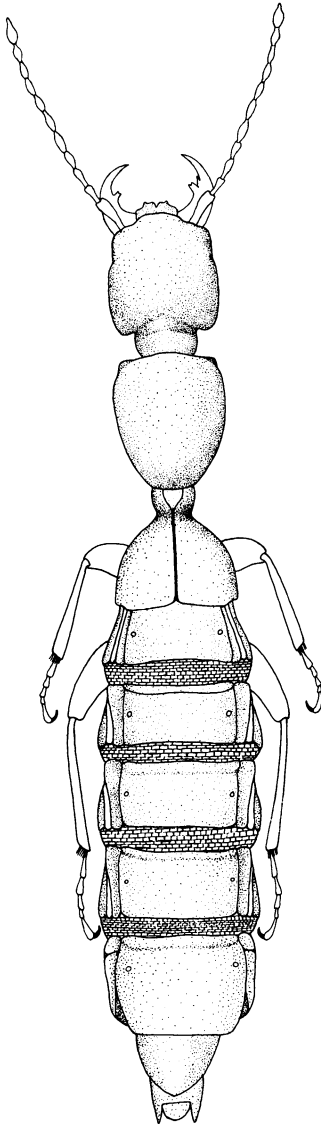


FIG. 1. *Stenopholea reddelli*, new genus and species, habitus of holotype, female.

Procoxal cavities closed posteriorly by expansion of mesothoracic peritreme (fig. 4). Venter of prothorax with scattered setae. Prosternum with mid-longitudinal ridge; ridge poorly developed anteriorly and more carinate posteriorly.

Mesothorax normally developed; anterior portion pedunculate and strongly constricted before elytra (figs. 1, 7). Scutellum with base broad, then lateral margins sharply convergent to attenuate apex; lateral margins slightly arcuate (fig. 1). Elytra very short; humeral angle strongly rounded to broadly rounded lateral margin; humeral angle poorly delimited from lateral margin; suture fused; basal, lateral angle notched; apex truncate (figs. 1, 9). Elytral epipleural ridge absent; hypopleural ridge present. Mesosternum with raised trapezoidal region anterior to mesosternal process; mesosternal process well developed and extending slightly between mesocoxae and carinate at apex (fig. 7). Metathoracic wings absent. Metathorax reduced. Metasternum with blunt, ventrally directed process between mesocoxae (fig. 7).

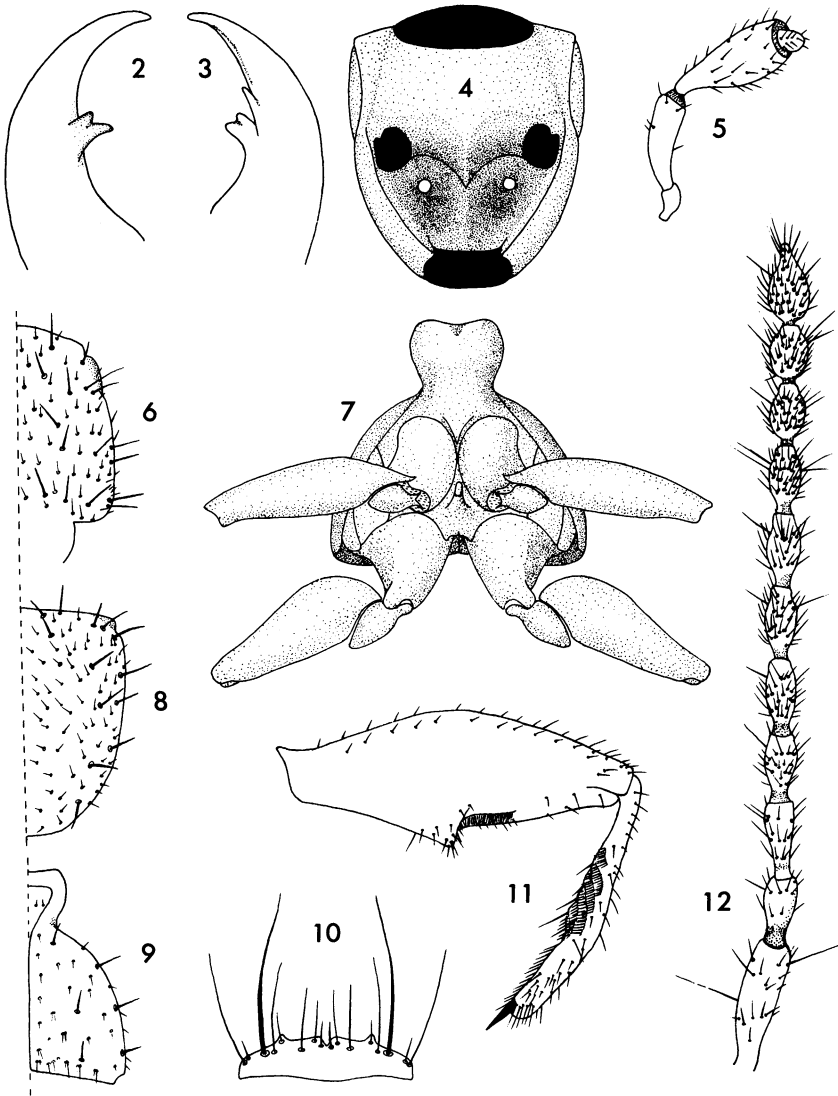
Procoxae conical, exposed, and prominent. Profemora stout, with prominent, broad process on anterior surface (fig. 11). Protibia slender; with transverse ctenidia on inner posterior surface (fig. 11). Mesocoxae oval, prominent, and contiguous. Mesofemora and mesotibia long, slender, and unmodified. Metacoxae large, triangular, and contiguous. Metafemora and metatibia long, slender, and unmodified. Metatibia with apical ctenidium on one side only. Tarsal formula, 5-5-5.

Abdomen with two longitudinally divided laterosclerites on segments III to VI; seventh segment with two transversely divided laterosclerites; remaining segments with laterosclerites absent (fig. 1). Second sternite reduced and closely associated with third sternite; with mid-longitudinal ridge present. Third sternite well developed; anterior portion with mid-longitudinal ridge. Third to eighth sternites unmodified. Eighth segment with posterior margin of tergum and sternum strongly convergent.

***Stenopholea reddelli*, new species**

HOLOTYPE: Female; Mexico: Tamaulipas, Rancho del Cielo, Mine Cave; June 3, 1967; J. Reddell and R. W. Mitchell; deposited in the American Museum of Natural History.

DESCRIPTION OF THE HOLOTYPE: Female. Length, approximately 6 mm. Head with 32 prominent, long, tactile setae on dorsum and lateral margins; with many additional shorter setae; setae in small punctures (fig. 6). Surface with dense, microreticulate ground sculpturing. Tentorial maculae present about two-fifths of distance from anterior margin of head and laterad of mid-longitudinal line. Compound eyes absent. Venter of head with five prominent setae near lateral margin and one near base of head adjacent to gular sutures; many shorter setae also present. Venter of head with dense, microreticulate, ground sculpturing. Gular sutures most approximate at constriction of head and neck;



FIGS. 2-12. *Stenopholea reddelli*, new genus and species, female. 2. Left mandible, dorsal view. 3. Right mandible, dorsal view. 4. Prothorax, ventral view. 5. Maxillary palpus. 6. Head, chaetotaxy, dorsal view, right half. 7. Pterothorax, ventral view. 8. Pronotum, chaetotaxy, dorsal view, right half. 9. Right elytron, chaetotaxy, dorsal view. 10. Labrum, dorsal view. 11. Profemora and protibia, mesal view. 12. Antenna.

sutures gradually divergent to posterior tentorial pits. Submental sutures continuous with gular sutures but sharply divergent from posterior tentorial pit. Neck without setae; dorsal surface with sinuate, transverse ridge near anterior margin; dorsal surface posterior to transverse ridge glabrous; with fine, microreticulate sculpturing anterior to ridge. Ventral surface of neck coarsely sculptured; with gular sutures sharply and strongly divergent. Antennomeres 2 to 11 constricted at apex; each of varying shape and size; numerous long, stout, prominent, tactile setae present (fig. 12). Labrum with narrow, small V-shaped, median emargination; denticle present midway between labral mid-longitudinal line and lateral margin; denticle with apex rounded; 16 setae on anterior margin; setae increasingly prominent laterally (fig. 10). Mandibles sickle-shaped; apex acute. Right mandible bidenticulate; anterior denticle short, small, bladelike, anteriorly directed and dorsal to second denticle; second denticle stout, broad, subcylindrical, with apical surface broad and weakly bifurcate (fig. 3). Left mandible with one stout, subcylindrical denticle similar to second denticle of right mandible (fig. 2). Maxillary palpus with basal article reduced; second article slender and gradually expanded apically; third article with base narrower than apex of second, then sharply expanded apically; fourth article reduced, short, stout, and cylindrical, with apex blunt (fig. 5). Labium with three slender articles. Mentum of trapezoidal shape. Submentum continuous with gula and with one lateral seta.

Pronotum with 28 prominent, long, tactile setae; with many shorter, less conspicuous setae (fig. 8); surface with dense, microreticulate ground sculpturing. Prosternal surface with minute sculpturing. Prosternum with 22 scattered, short, inconspicuous setae. Elytra both with two oblique rows of three prominent tactile setae; with many additional setae (fig. 9); surface minutely sculptured. Scutellum with four short, inconspicuous setae.

Abdomen with dense, microreticulate ground sculpturing; many setae present; with stout, prominent tactile setae increasing in length and density toward apex of abdomen.

DISCUSSION

Stenopholea is placed in the Paederinae because of the presence of the rectangularly patterned intersegmental membrane of the abdominal segments (Blackwelder, 1939, 1943), the reduced fourth segment of the maxillary palpus, the lack of ocelli, the insertion of the antennae on the anterior margin of the head, the presence of abdominal laterosclerites, the absence of a completely developed second abdominal sternite, and

the conical, exposed procoxae.

In the key to the genera of the Paederini presented by Blackwelder (1939), *Stenopholea* runs to *Scotonomus*. These genera can be separated by characteristics of the prothorax: the lateral edge of the mesospiracular peritreme is fused to the mesial edge of the prohypomeron in *Stenopholea*, whereas in *Scotonomus*, from Europe, the mesospiracular peritreme is narrowly separated from the prohypomeron. The species in both of these genera have lost their eyes.

In accordance with the classification and characters presented by Casey (1905, pp. 56-58) and Fagel (1958, pp. 10-66; 1959, pp. 5-35), *Stenopholea* is in the subtribe Dolicae which was not previously recorded from the New World. All the species of the subtribe have the mesospiracular peritreme enlarged and sclerotized to a greater or lesser degree. The mesospiracular peritreme presumably represents sclerotization of the membrane surrounding the mesothoracic spiracle. If the sclerite surrounding the spiracle is large, the procoxal cavities are closed posteriorly (fig. 4). Closure of the procoxal cavities by the mesospiracular peritreme represents one of at least three types of such closures found in the Staphylinidae. In such genera as *Priochirus* and *Leptochirus* the procoxal cavities are closed posteriorly by the post-procoxal lobe of the prohypomeron, which extends mesially to the prosternal process. The third type of closure is formed by the prosternal process which is expanded laterally to the prohypomeron; this type is found in *Cephalochetus*, *Echiaster*, *Astenus*, *Stammoderus*, and some other genera of the Paederinae related to these.

The genera of the Dolicae can be separated into two groups that are based on apomorphic characteristics of the fourth article of the maxillary palpus, the mesospiracular peritreme, and the mesospiracle. The fourth article of the maxillary palpus is strongly compressed in most of the genera, and in several cases the article is so strongly compressed that it is nearly membranous. The maxillary palpus of at least two genera has a large, cylindrical, fourth article. The strongly compressed fourth article is perhaps relatively more derived than the cylindrical type, but both conditions are apomorphic compared with the small, indistinct article found in most of the Paederinae.

Because the enlarged mesospiracular peritreme is found in no other Paederinae, we can consider the absence of the sclerotization surrounding the mesospiracle to be the primitive condition and its presence in the Dolicae to be derived. In one group of genera the mesospiracle is large and is usually wider than long. The mesospiracular peritreme is weakly sclerotized, poorly fused to the posterior margin of the prosternum, and

widely separated from the prohypomeron. In the other group of genera the mesospiracle is small and the mesospiracular peritreme is strongly sclerotized, has most of its anterior margin fused to the posterior margin of the prosternum, and has the lateral margin narrowly separated from the prohypomeron or actually fused to it.

Of the genera available to me for study, *Pinobius*, *Leptobium*, *Dolicaon*, and *Afracus* should be included in a phyletic branch characterized by a small, weakly sclerotized, mesospiracular peritreme, a large mesospiracle, and a compressed fourth article of the maxillary palpus. Fagel (1958, 1959) described eight new genera, most of which included species from *Dolicaon*. I have not seen specimens of most of these genera, and in almost every case the description given by Fagel is not sufficiently clear with regard to the characters used in my phylogenetic arrangement to allow discussion of the evolutionary relationships of the taxa. Because these eight genera include species from *Dolicaon* or are considered by Fagel to be "near" genera that include species from *Dolicaon*, I am tentatively including *Platydolicaon*, *Plathypodema*, *Liparopus*, *Serrolabis*, *Jarrigeus*, *Afroscotonomus*, and *Scotticus* in the phyletic line that includes *Dolicaon*, *Leptobium*, *Pinobius*, and *Afracus*. One possible exception is *Afroscotonomus* which Fagel compared with *Scotonomus*. Details of the relationships between these genera must await study of the taxa that were unavailable to me.

The other phylogenetic branch has two genera, *Scotonomus* and *Stenopholea*. Both genera have a cylindrical fourth article of the maxillary palpus, a large, strongly sclerotized mesospiracular peritreme, and a small circular mesospiracle. The structure of the strongly sclerotized mesospiracular peritreme is more highly derived in these two genera than in the other phyletic line. Further, in *Stenopholea* the fusion of the lateral margin of the mesospiracular peritreme to the prohypomeron is a more highly derived condition than that in *Scotonomus*, in which the lateral margin of the peritreme is narrowly separated from the prohypomeron.

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