

A new tribe, genus, and species of limnichid beetle,  
*Wooldridgeus perforatus*, from Malaysia  
 (Coleoptera: Limnichidae: Wooldridgeini)

Paul J. Spangler

Department of Entomology, MRC-169  
 National Museum of Natural History, Smithsonian Institution  
 Washington, D.C. 20560

**Abstract.**-A new tribe is established in the Limnichidae, Limnichinae, for a new genus and species, *Wooldridgeus perforatus*, from Sabah, Malaysia. Two autapomorphic characters distinguish Wooldridgeini from the two other tribes of the subfamily Limnichinae; 1) the mesotarsus and metatarsus join their respective tibia ventrally (medially) and preapically instead of the usual apical only connection and 2) a large pore, presumed to be an opening of a prothoracic gland, is present on each hypomeron. Distinguishing characters are illustrated by scanning electron micrographs and line drawings. A key to the three tribes included in the Limnichinae is provided.

Specimens of the new tribe, genus, and species described below were found among a variety of aquatic and terrestrial beetles collected for the National Museum of Natural History, Smithsonian Institution, by Gary F. Hevel and Warren E. Steiner in Sabah, northern Borneo in 1983.

**Wooldridgeini Spangler, new tribe**

**Diagnosis.**-Small, length less than 2 mm. Broadly ovate and convex dorsally (Figures 1, 2). This new taxon may be readily distinguished from all other described limnichid taxa by the ventral (medial) and preapical connection of the mesotarsus and metatarsus to their respective tibia (Figures 17, 18) instead of only an apical connection as found in other limnichid taxa. A large pore, not known in other taxa of the Limnichidae, is present on each hypomeron of this new taxon.

**Wooldridgeus Spangler, new genus**

**Diagnosis.**-Characters of the tribe and the following. Length, 1.90-2.00 mm. Venter with concavity for reception of legs (Figures 2, 16). Tarsal formula 5-5-5. Antenna, 11 segmented; with 3-segmented club. Hypomeron with pore of prothoracic gland opening near each lateral margin (Figures 14, 15); with an obliquely transverse ridge extending mediad from posterolateral concavity to lateral margins of prosternum. Epipleuron very broad opposite

mesocoxae, wider than width of mesofemur; with oblique, deep, apicomedial concavity for reception of distal part of mesotibia in repose (Figures 16-18).

**Description.** Adult.-With characters of tribe and those given in diagnosis of genus and the following. Body broadly ovate; almost flat ventrally; moderately convex dorsally. Integument clothed with dense pubescence; pubescence comprised of setae of two types; one type slender, smooth, and aciculate; second type broad and longitudinally grooved (Figure 24).

Head hypognathous, usually retracted into pronotum. Mouthparts often retracted. Maxillary palpus, 4 segmented. Labial palpus, 3 segmented. Clypeus transversely rectangular with short oblique grooves laterally which extend onto head; labroclypeal suture deep, distinct (Figures 4, 6). Labrum subquadrate, apicolateral angles broadly rounded (Figures 5, 6).

Pronotum convex; widest across base (Figure 1); deeply emarginate for reception of head; margins narrowly rimmed; posterior margin sinuate. Elytron punctate and densely pubescent. Hind wing (Figure 10) with reduced venation; without a radial cross vein, cubito-anal vein, or anal cell; radial-medius indistinct; medius shortened, joined with cubitus distally; of anal veins, only anal vein 2 present. Prosternum long anterior to procoxae; rimmed anteriorly. Prosternal process convex, about as wide as profemur at its midlength; apex moderately rounded. Mesosternum short but widely transverse and bandlike,

moderately flat; anterior margin sinuate; posterior margin truncate. Metasternum moderately convex, wide, deeply grooved apicolaterally for reception of mesotibia. Antecoxal sclerite distinct. Metacoxa transversely elongate, grooved posteriorly for reception of metafemur. All tarsal claws simple, not toothed (Figure 22).

Abdomen with 5 visible segments. Segment 1 pubescent with exception of oblique glabrous concavity for reception of metafemur and metatibia. Segments 2-5 pubescent except subtriangular glabrous area on segments 2 and 3; glabrous area may be result of abrasion from lateral movements of metatarsi, which do not fit into concavities. Last segment emarginate apicomediaally (Figure 25).

I consider the two unique and distinctive characters 1) the unique insertion of the mesotarsus and metatarsus to the tibia and 2) the large hypomeral pore to be autapomorphic

**Type Species of the Genus.** *Wooldridgeus perforatus* Spangler, by monotypy.

**Etymology.**-*Wooldridgeus*, a patronym dedicated to my colleague Dr. David P. Wooldridge, who has contributed extensively to the knowledge of the world's taxa included in the Limnichidae. The generic name is masculine.

***Wooldridgeus perforatus* Spangler,  
new species  
Figures 1-32**

**Diagnosis.**-The single species known in this genus may be recognized by the characters included in the diagnoses of the tribe and genus plus the following.

**Holotype (Male).**-Body Form and Size: Broadly ovate, moderately convex dorsally. Length, 1.90 mm; greatest width across basal fifth of elytra, 1.43 mm.

Color: Cuticle black; pubescence golden yellow.

Head: Pubescent. Subquadrangular, with eyes not visible from above (Figure 3). Sides flat, obliquely rimmed dorsally (Figures 4, 8). Apical margin on each side of clypeus with short, narrow groove (Figure 4). Clypeus sparsely pubescent; labrum densely pubescent (Figures 4, 5, 6). Antennae with segments 1, 2, and 9-11 longest and broadest; segments 3-8 cylindrical and narrow; segments 2-11 moderately densely pubescent; segments 9-11 become progressively broader and more densely pubescent (Figure 8). Maxilla with palpus pubescent; apical segment long, swollen,

with sensilla on small apical protuberance (Figures 5, 12, 13). Galea and lacinia each with apical tuft of dense setae (Figure 9). Labial palpus with apical segment longest; apical segment cylindrical and sparsely pubescent (Figure 9), with sensilla on apex (Figure 11).

Thorax: Pronotum broadest and trisinuate across base. Hypomeron flat; microreticulate; without pubescence except sparsely along margins and in each prothoracic pore. Scutellum subtriangular (Figure 23). Elytron microreticulate; cuticle with 2 types of setae (Figures 23, 24). Epipleuron pubescent and very broad opposite metasternum and then widely rimmed along inner margin (Figures 16-18). Prosternum with cuticle microreticulate and moderately pubescent. Protarsi (male) with long spatulate setae on ventral surface (Figures 5, 16, 20, 21). Mesotibial apex with 5 stout spurs on truncate apex (Figures 18, 19). Mesotarsi and metatarsi arising subapically on ventral (medial) surface of mesotibial and metatibial apices respectively (Figures 17-19).

Abdomen: As described for genus.

Genitalia: As illustrated (Figures 26-29).

**Female.**-Externally similar to male. Genitalia as illustrated (Figures 30-32).

**Variations.**-The only variation noted among the 42 specimens is in size; lengths ranged from 1.86 to 2.08 mm; width ranged from 1.38 to 1.57 mm.

**Type data.**-Holotype, ♀: Malaysia: Sabah, Telupid (25 km E), 17 Aug 1983, at blacklight, G.F. Hevel & W.E. Steiner; deposited in the National Museum of Natural History, Smithsonian Institution. Allotype: Same data as holotype. Paratypes: Same data as holotype, 40 specimens.

**Etymology.**-Named *perforatus* because of the unusual subapical attachment of the mesotarsus and metatarsus, which perforates the side of the tibia (Figures 18, 19).

**Habitat.**-The specimens described above were collected along with other small aquatic beetles at blacklight at a logging area on a semi-forested hilltop, 25 kilometers east of Telupid. The site was not clear cut and some tall trees and old cut logs were present in the area.

**Discussion.**-In reviewing the literature in order to identify this new taxon, I consulted the most recent key by Wooldridge (1975); this included 3 subfamilies and 15 genera known to occur in the Western Hemisphere. In that key, the new genus traced to the subfamily Limnichinae and the genus *Limnichus* Latreille (1829).