



## **Buotidae, a new family for the minute North American milliped *Buotus carolinus* (Chamberlin) 1940 (Diplopoda, Chordeumatida, Striarioidea)**

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### **Abstract**

*Buotus carolinus* (Chamberlin) 1940, a minute, rarely collected but relatively widespread milliped of the mid-Atlantic region of the United States, was originally described as a member of the order Polyzoniida, family Polyzoniidae. Shear (1981) correctly placed the species in the order Chordeumatida and argued for assignment to the suborder Craspedosomatidea, superfamily Brannerioidea, family Tingupidae. New studies of fresh specimens using the scanning electron microscope, however, revealed characters inconsistent with this placement and instead support inclusion of *Buotus* in the suborder Striarioidea, superfamily Striarioidea. Because the species cannot be accommodated in any of the established families of this superfamily, a new family Buotidae is herein erected to receive it.

**Key words:** North Carolina, Virginia, taxonomy, morphology, Brannerioidea, Striarioidea, Tingupidae, Rhiscosomididae, Apteroideidae

### **Introduction**

Chamberlin (1940) described the species *Buotus carolinus* based on a single female specimen (which Chamberlin thought immature) from the Duke Forest, Durham, North Carolina, that had been collected by Nell B. Causey. Chamberlin's description was quite general and contained little diagnostic information. It is not clear why Chamberlin decided to place the genus and species in the family Polyzoniidae, since the specimen demonstrably does not possess (nor did Chamberlin refer to) any of the characters of that family, including free pleurites and strongly modified mouthparts. Only the clavate antennae and low paranota suggest any resemblance to a polyzoniid.

My reclassification of the North American chordeumatidan fauna (Shear 1972) presented a map of the distribution of the chordeumatidan family Tingupidae with a locality in western Virginia based on "...an immature 28-segmented female" which I assumed was a member of that family. But in 1976 I collected a few similar specimens in Montgomery Co., Virginia, and on the advice of Richard Hoffman, was impelled to examine the holotype of *Buotus carolinus*, deposited in the United States National Museum of Natural History (USNMNH). I found the earlier-collected female, the new specimens, which included males, and the holotype (a mature female, also with 28 segments) to be conspecific and typical chordeumatidans, but was unsure of a family assignment. In 1981, I decided that *Buotus carolinus* belonged in Tingupidae after all, and included it in a revision of that family, most members of which occur in the western United States. I followed up that study with more detailed work on the same specimens in 1998, in the context of describing another minute tingupid from Colorado, *Blancosoma scaturgo* Shear & Hubbard (Shear & Hubbard 1998).

Recently, yet more fresh material of *B. carolinus* was obtained from Patrick Co., Virginia, and collections of the species from the Virginia Museum of Natural History were also examined, through the cooperation of curator Dr. Richard Hoffman. This time I was able to study the species using a scanning electron microscope