

# Novitates Paleoentomologicae



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## BRIEF COMMUNICATION

### A new genus of Early Jurassic earwigs from England (Dermaptera)

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**Abstract.** A new genus of archidermapteran earwigs is described for *Brevicula teres* Tihelka (Dermapteridae) from Sinemurian deposits of the Black Ven Mudstone Member, Charmouth Mudstone Formation, Dorset, United Kingdom. *Dacryoderma* Engel, new genus, is distinct from *Brevicula* Whalley in the broadly rounded anterior tegminal border lacking a submedial hump and overall teardrop shape, with the anterior margin tapering gradually in a comparatively straight line to the more acutely rounded apex. The following new combination is established: *Dacryoderma teres* (Tihelka).

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## INTRODUCTION

Earwigs (Dermaptera) are greatly distinctive insects, easily recognized for their typically cylindrical bodies, shortened and tegminized forewings, uniquely arranged hind wings, and, of course, their remarkable cercal forceps (Grimaldi & Engel, 2005), among other features less obvious to the layperson. The lineage comprising the earwigs is quite ancient, with definitive Dermaptera extending into the Late Triassic (Grimaldi & Engel, 2005), although Triassic and Jurassic earwigs would be somewhat more foreign to the average viewer's eye. Species from these periods largely belong to the extinct suborder Archidermaptera, although during the Jurassic archidermap-

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terans overlapped with the more derived, albeit still extinct, Eodermaptera (*e.g.*, Nel *et al.*, 2012). Unlike our familiar modern earwigs, Archidermaptera lacked the forcipate cerci, although the forewings were still distinctively tegminized, although they typically had venation. In addition, Archidermaptera possessed ocelli, had externalized ovipositors, and had more fully developed tarsi (Nel *et al.*, 2012).

Herein I provide the description of a new genus for a species of Archidermaptera from Early Jurassic (Sinemurian) deposits of the Black Ven Mudstone Member, Charmouth Mudstone Formation, Dorset, United Kingdom (Tihelka, 2019). The species had originally been assigned to the genus *Brevicula* Whalley, but based on several features is here considered to represent a separate group, perhaps more closely allied to such genera as *Phanerogramma* Cockerell or *Valdopteron* Kelly *et al.*, although such shared similarities could be plesiomorphic. Currently, the phylogenetic relationships among many archidermapteran genera remains unnavigable owing to the dearth of informative characters from most taxa. The fragmentary nature of these remains presents an impenetrable barrier to clarity regarding the early evolution of Dermaptera. It is hoped that continued exploration will bring forth more completely preserved material so that these isolated tegmina may be placed into a proper phylogenetic framework.

## MATERIAL AND METHODS

The format for the generic description generally follows that of Kelly *et al.* (2016) and their treatment of isolated Triassic–Jurassic earwig tegmina. Note that terms of orientation have differed across treatments of earwig taxonomy. Specifically, terms denoting orientation of the tegmen have differed in recent treatments, with identical words referencing dramatically different surfaces and directions. Both interpretations are correct and relate to whether the terms of orientation are based on the resting position of an appendage or wing, or if based on an outstretch appendage or wing that is perpendicular to the sagittal axis of the body. Accordingly, in relation to a neopteran wing, the leading edge of the wing can be accurately described as the anterior margin (when considering terms in relation to an outstretched wing), or the lateral margin (when considering the wing folded over the body at rest). In most neopteran orders, the margins of the wings are discussed in relation to an outstretched wing (*e.g.*, Plecoptera, Embiodea, Psocoptera, Diptera, Hymenoptera, and many others), thereby matching the plesiomorphic orientation of palaeopterous wings. However, in others, particularly those in which the forewings are significantly modified, such as tegmina, elytra, or hemelytra, they are often discussed in relation to a resting position over the abdomen (*e.g.*, Coleoptera). Typically, the tegmina of Dermaptera are discussed with terms of orientation similar to those of Coleoptera, whereby the leading edge is referred to as the outer lateral margin and the trailing edge is treated as the mesal sutural margin. Kelly *et al.* (2016) and Tihelka (2019), departing from such tradition, employed terms of orientation in relation to an outstretched tegmen. Their usages are certainly accurate and more in line with proper pterygote terminology, but can lead to confusion as their “anterior” and “posterior” margins generally equate with the “outer lateral” and “mesal sutural” or “inner margin” of most dermapterological literature. The merits of their application of terms is considerable. Nonetheless, I’ve used both terminologies herein, one in parentheses, to maintain some form of continuity with the large body of literature on earwigs.

## SYSTEMATIC PALEONTOLOGY

Suborder Archidermaptera Bey-Bienko  
Family Dermapteridae Vishniakova

*Dacryoderma* Engel, new genus

ZooBank: urn:lsid:zoobank.org:act:4EF10CD0-83F3-481B-9516-371DC4AA8402

TYPE SPECIES: *Brevicula teres* Tihelka, 2019.

DIAGNOSIS: The new genus lacks the pronounced submedial hump in the anterior (lateral) margin of the tegmen otherwise characteristic of *Brevicula*. Instead, the anterior (lateral) margin is arched and then tapers evenly in the apical (posterior) half to the apex. The apex of *Brevicula* is quite broadly rounded, almost approximating a truncate shape, while in *Dacryoderma* the apex is acutely rounded. The posterior (mesal, sutural) margin is straight. In *Brevicula* the tegmen is more elongate, approximately 3× as long as wide, rather than the more squat form of the new genus at about 2.4× as long as wide. Like *Brevicula*, the new genus lacks tegminal venation, and the surface is densely punctate throughout. There are no maculations or markings on the tegmen. *Dacryoderma* is noticeably smaller at less than 3 mm, while species of *Brevicula* are over 4 mm in length.

ETYMOLOGY: The new generic name is a combination of the Ancient Greek words *dákru* (δάκρυ, meaning, “tear”) and *dérma* (δέρμα, meaning, “skin” or “hide”), as a reference to the general form of the tegmen. The gender of the name is neuter.

INCLUDED SPECIES: Currently, the genus includes only the type species, *Dacryoderma teres* (Tihelka), new combination.

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ZooBank: urn:lsid:zoobank.org:pub:158EADE1-222F-4389-978F-48D29E52B4B3



*Pharciphyzelus lacefieldi* Beckemeyer & Engel, 2011

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