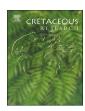
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### Short communication

# New non-biting midges (Diptera: Chironomidae) from Lower Cretaceous Wealden amber of the Isle of Wight (UK)



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#### ABSTRACT

Non-biting midges (Chironomidae) from Lower Cretaceous Wealden amber of the Isle of Wight (lower Barremian, ca. 128 Ma) are reviewed. As a result, *Dungeyella gavini* Jarzembowski, Azar *et* Nel, 2008, the only chironomid species known from this amber deposit, is for the first time recognised from the adult male, and the systematic position of *Dungeyella* within the subfamily Buchonomyiinae is established. *Libanodiamesa simpsoni* sp. nov. (Prodiamesinae), now found in Wealden amber, is the second species of the genus previously only recorded from Lower Cretaceous Lebanese amber. A detailed morphological analysis revealed characters (wing venation patterns, genital apparatus structure) defined as unique for the two genera, the diagnoses of which are amended. Biogeographical features of the Wealden amber Chironomidae are also discussed against the background of their fossil records from the Cretaceous.

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## 1. Introduction

Non-biting midges (Chironomidae) are among the most abundant and diverse aquatic insects, with over 7000 described extant species worldwide (Ferrington, 2007; Pape et al., 2011). The geological history of non-biting midges stretches from the Late Triassic onwards, with the oldest known chironomid being *Aenne triassica* Krzemiński and Jarzembowski (1999). Since chironomid larvae in different genera are closely associated with specific types of habitat and environmental conditions, the family is often used in environmental monitoring and paleoenvironmental reconstruction. Seredszus and Wichard (2007) and Grund (2006) have pioneered the approach of paleohabitat reconstruction based on the generic composition of chironomid species complexes in amber. This approach works best when extant genera are present in the fauna, so it is practically limited to the Cenozoic; however, some paleoenvironmental

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information can be inferred from extinct taxa as well (Azar et al., 2008; Jarzembowski et al., 2008; Baranov et al., 2017). Thus studies of fossil chironomid faunas are not only providing us with new taxonomic and phylogenetic information, but also allow an insight into the palaeoenvironment in which the insects lived.

Adult chironomids were amongst the first inclusions found in Cretaceous amber in the UK (Jarzembowski, 1995). These were from Wealden amber ('chiltonchineite') in the Wessex Formation exposed by marine erosion on the southwest coast of the Isle of Wight (IoW) in southern England and are some 128 million years old (Jarzembowski, 1999). Unlike in the Wealden rock fauna, chironomids dominated the small amber assemblage considered to have been preserved in a climatically controlled debris deposit (Jarzembowski et al., 2008). The first chironomid inclusion to be described from this bed, *Dungeyella gavini* Jarzembowski et al., 2008, was a female clearly belonging to an extinct fauna unlike Cenozoic chironomids.

In this paper, using subsequently found inclusions in the Wealden amber of the IoW, we describe a new species of the subfamily Prodiamesinae as well as elucidate the taxonomic position of the genus *Dungeyella* Jarzembowski et al., 2008, the only chironomid so far described from 'chiltonchineite'.

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