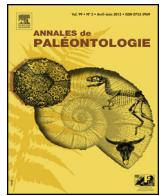




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Original article

Globotalicypridea mirabilis sp. nov. – the first non-marine ostracod taxon from the Upper Cretaceous of the Hațeg Basin, Romania



Globotalicypridea mirabilis sp. nov. – la première espèce non-marine d'ostracode du Crétacé Supérieur de Bassin de Hațeg, Roumanie

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ABSTRACT

A monospecific assemblage of *Globotalicypridea mirabilis* sp. nov. is reported from the Maastrichtian of the Hațeg Basin, Romania. This new species is the first ostracod taxa described from the famous dinosaur-bearing continental deposits of the Hațeg Basin. *G. mirabilis* sp. nov. is characterized by large, finely punctate, and posteriorly strongly inflated carapace with a few papillae on the anterior margin. This new species was restricted exclusively to freshwater (limnic-fluvial) environments. The identification in Hațeg Basin of *Globotalicypridea* expands the known geographic distribution of the Talicyprideinae into Eastern Europe, creating a link between Western European and Asian occurrences.

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RÉSUMÉ

Un assemblage monospécifique de *Globotalicypridea mirabilis* sp. nov. a été observé dans les dépôts continentaux du Maastrichtien de la région d'Hațeg (Roumanie). Cette nouvelle espèce est le premier taxon d'ostracode décrit dans le gisement dinosaures du dépôt continental du Bassin de Hațeg. *G. mirabilis* sp. nov. est caractérisée par une carapace large, finement ponctuée et fortement enflée sur la partie postérieure avec peu de papillae sur la marge antérieure. Cette nouvelle espèce était restreinte exclusivement aux environnements d'eau douce (fluviaux-lacustres). L'identification de *Globotalicypridea* dans le Bassin d'Hațeg étend la distribution géographique connue des Talicyprideinae à l'Europe de l'Est créant ainsi un lien entre les occurrences en Europe de l'Ouest et l'Asie.

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1. Introduction

The Hațeg Basin and its famous dinosaur-bearing Maastrichtian continental sediments are well known among palaeontologists. As early as the late 19th century, the work of Halaváts (1897) and Nopcsa (1897), followed by their dispute regarding the age of dif-

ferent strata in the Hațeg Basin (Nopcsa, 1899), started the still ongoing palaeontological studies in the Hațeg Basin. Nopcsa's pioneering work on fossil vertebrates (e.g. Nopcsa, 1900, 1902, 1904, 1915, 1923, 1929), and regional geology (Nopcsa, 1905) established an excellent framework for the future studies (Grigorescu, 2010). Until now, 56 valid taxa, covering all vertebrate classes from fishes to mammals (see Grigorescu, 2005, 2010; Weishampel et al., 2010 and references therein) are known from the Cretaceous of this basin. Apart from them only fossil eggs (Grellet-Tinner et al., 2012; Grigorescu et al., 2010), palynomorphs (Antonescu et al., 1983; Van

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Itterbeek et al., 2005), fossil plants (Mărgărit and Mărgărit, 1967), and freshwater gastropods (Antonescu et al., 1983; Pană et al., 2002) were described in detail. Ostracods were only mentioned as being present in several strata (Grigorescu, 2005; Grigorescu et al., 1990), without further description or illustration. Therefore, until now they were practically unknown from the Upper Cretaceous continental sediments of the Hațeg Basin.

In 2008, however the research group head by Vlad Codrea noted that the erosion exposed along the Bărbat River previously inaccessible strata to be studied by Therrien (2005), and Van Itterbeek et al. (2004). One of the new exposures, the so-called Pui Depozit was particularly rich in fossil remains, including more than three dozen ostracod carapaces and few single valves (Codrea and Solomon, 2012). All ostracod specimens found belong to one new species of the genus *Globotalicypridea* Cabral and Colin (in Cabral et al., 2008).

The aim of this paper is to discuss the taxonomy of *Globotalicypridea mirabilis* sp. nov., and to infer its stratigraphic distribution, and palaeoecology based on the available data on fossil content (Codrea and Solomon, 2012; Van Itterbeek et al., 2005), and sedimentology (Therrien, 2005; Van Itterbeek et al., 2004) of its type locality, and other sections from the Hațeg Basin.

2. Geological and stratigraphical settings

The Late Cretaceous Hațeg Basin is a syn-orogenic sedimentary basin in the Southern Carpathians. The basin was formed on the upper plate (Getic Unit) as a response to underthrusting and internal stacking of the lower plate (Danubian unit), and subsequent subsidence due to orogenic collapse resulting extensional tectonics (Willingshofer et al., 2001). The basin was filled by fluvio-lacustrine depositional systems, which generated a nearly 6000 m thick stratigraphic record, known as the Sânpetru and Densuș-Ciula formations. The Sânpetru Formation exposed along the Sibiu Valley records depositions by a poorly channelized broad braidplain or by a distal alluvial fan (e.g. Grigorescu, 1992; Therrien, 2006; Therrien et al., 2009), while the Densuș-Ciula Formation was deposited on a stable, moderately- to well-drained floodplain by alluvial fans or braided streams together with pyroclastics supplied by pulsing volcanic activity in the surroundings (e.g. Anastasiu, 1991; Grigorescu, 1992; Therrien, 2005).

The continental strata mainly crop out in the western part of the Hațeg Basin, and along the Sibiu valley located in central-southern part of the basin. Another interesting, but less well-exposed area is located south of Pui ($45^{\circ}30'40.33''\text{N}$, $23^{\circ}5'40.90''\text{E}$), in the Hațeg Basin's southeastern corner (Fig. 1).

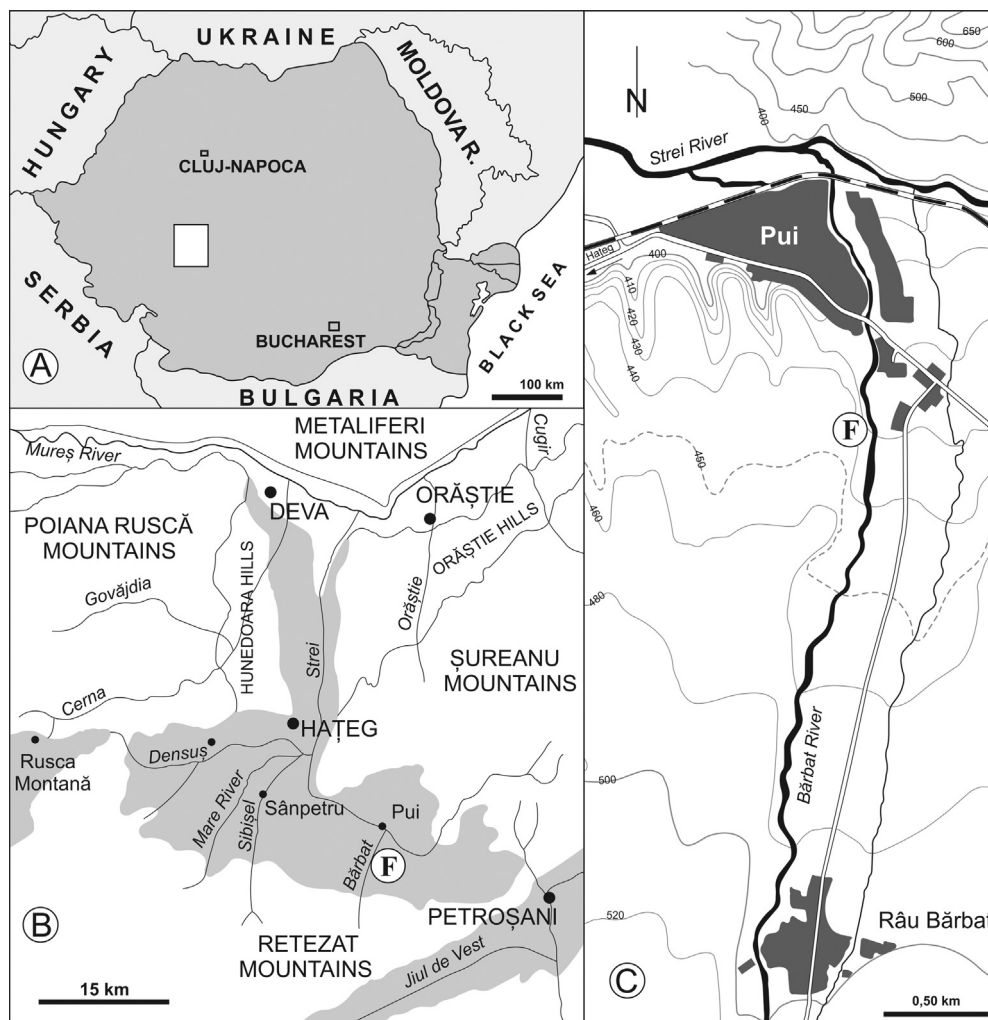


Fig. 1. Maps (A, B, C) showing the geographical position (F) of the outcrop Pui Depozit, and the Upper Cretaceous (gray on the map B) in the Hațeg Basin. Cartes (A, B, C) montrant la position géographique (F) de l'affleurement Pui Depozit, et le Crétacé supérieur (gris sur la carte B) dans le Bassin Hațeg.

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