

Revision of the rudist genus *Orestella* Lupu, 1982 (Bivalvia, Order Hippuritida) from the Upper Cretaceous of Romania



Sacit Özer ^{a,*}, Liana Săsară ^b

^a Dokuz Eylül University, Engineering Faculty, Department of Geological Engineering, Tınaztepe Campus, Buca, TR-35160 İzmir, Turkey

^b Babeş-Bolyai University, Department of Geology, 1 Mihail Kogălniceanu Street, 400084 Cluj-Napoca, Romania

ARTICLE INFO

Article history:

Received 22 June 2013

Accepted in revised form 3 September 2014

Available online 28 September 2014

Keywords:

Rudist

Bivalvia

Orestella

Revision

Upper Cretaceous

Romania

ABSTRACT

Re-examination of the *Orestella* Lupu, 1982 (formerly *Orestia* Lupu, 1972) type material in the Geological Institute, Bucharest, Romania, revealed the need for revision of its taxonomic status. The holotype and paratypes of this taxon show the diagnostic characteristics of the Family Hippuritidae, not the Radiolitidae as previously indicated. This genus should therefore be transferred to the Hippuritidae. The structure of the pillars, the ligamental ridge and the outer shell layer of the right valve as illustrated by the type material point to an affiliation either with *Hippurites* or with *Hippuritella*. We discuss this assignment by taking into account the similarities with *Hippurites organisans* (de Montfort), *Hippuritella lapeirousei* Goldfuss and *Hippuritella variabilis* (Munier-Chalmas). The stratigraphic framework of the study material is also discussed with respect to the Upper Cretaceous successions in the Central-Eastern Carpathians of Romania.

© 2014 Elsevier Ltd. All rights reserved.

1. Introduction

The new rudist genus *Orestia* was described and assigned to the Radiolitidae by Lupu (1972) based on her interpretation of the outer shell layer of the right valve in five specimens recorded by Mirăuță and Mirăuță (1964) from the bioclastic breccia of Campanian–Maastrichtian age (Lower Hangu Beds) from the Cvejdiu Valley, north of the town of Piatra Neamt in the central area of the East Carpathians (Fig. 1). Later, Lupu (1982) replaced the genus name by *Orestella* due to preoccupation of the former name by *Orestia* Chevrolat in Dejean, 1836, p. 440 (Insecta, Order Coleoptera). Subsequently, no additional specimens of this taxon were recorded either in the Romanian Upper Cretaceous rudist-bearing formations or in the Mediterranean Tethys area in general (cf. Steuber, 2002). Nevertheless, the assignment of *Orestella* to the Family Radiolitidae was carried over in the classification of rudists proposed for the revised Bivalvia volumes of the 'Treatise on Invertebrate Paleontology' (Carter et al., 2011), and also more recently by Skelton (2013).

The main aim of our study is the taxonomic revision of *Orestella* Lupu, 1982 based on re-investigation of the holotype and paratypes housed in the Geological Institute of Romania collection in

Bucharest. The age and stratigraphic assignment of the study material are also discussed. A new taxonomic status of *Orestella* is proposed for inclusion in the revision of the Bivalvia volumes of the 'Treatise on Invertebrate Paleontology'.

2. Geological setting

The specimens were collected by Mirăuță and Mirăuță (1964) from the Cvejdiu Valley, north of Piatra-Neamț. Stratigraphically, the deposits belong to the Lepșa Formation from the Vrancea Nappe (Marginal Folds Nappe, *sensu* Săndulescu, 1984) representing the external tectonic units of the Outer Moldavidian domain of the Romanian Carpathians (Fig. 1). The sedimentary succession of the Vrancea Nappe (Marginal Folds) range in age from the Early Cretaceous to the Early Miocene (Dumitrescu, 1952; Băncilă, 1958; Grasu et al., 1988; Guerrero et al., 2012) and the following units crop out in ascending stratigraphic order: the Sărata, Lepșa, Piatra Uscată, Jgheabu Mare, Doamna Limestone, Bisericiani, Globigerina Marls and Lucăcești Sandstone, Lower Menilite, Bituminous Marl, Lower Dysodilic Shale with Kliwa Sandstones, Upper Dysodilic Shale and Menilite and, finally, Gura Șoimului formations (Miclăuș et al., 2010). In our study area from the Cvejdiu basin, the Vrancea Nappe crops out in the Bistrița tectonic half-window (Băncilă, 1958; Grasu et al., 1988) and the Early–Late Cretaceous deposits belong to the Sărata and Lepșa Formations (Guerrera et al., 2012). The specimens of *Orestella* under review originate from the

* Corresponding author.

E-mail address: sacit.ozet@deu.edu.tr (S. Özer).

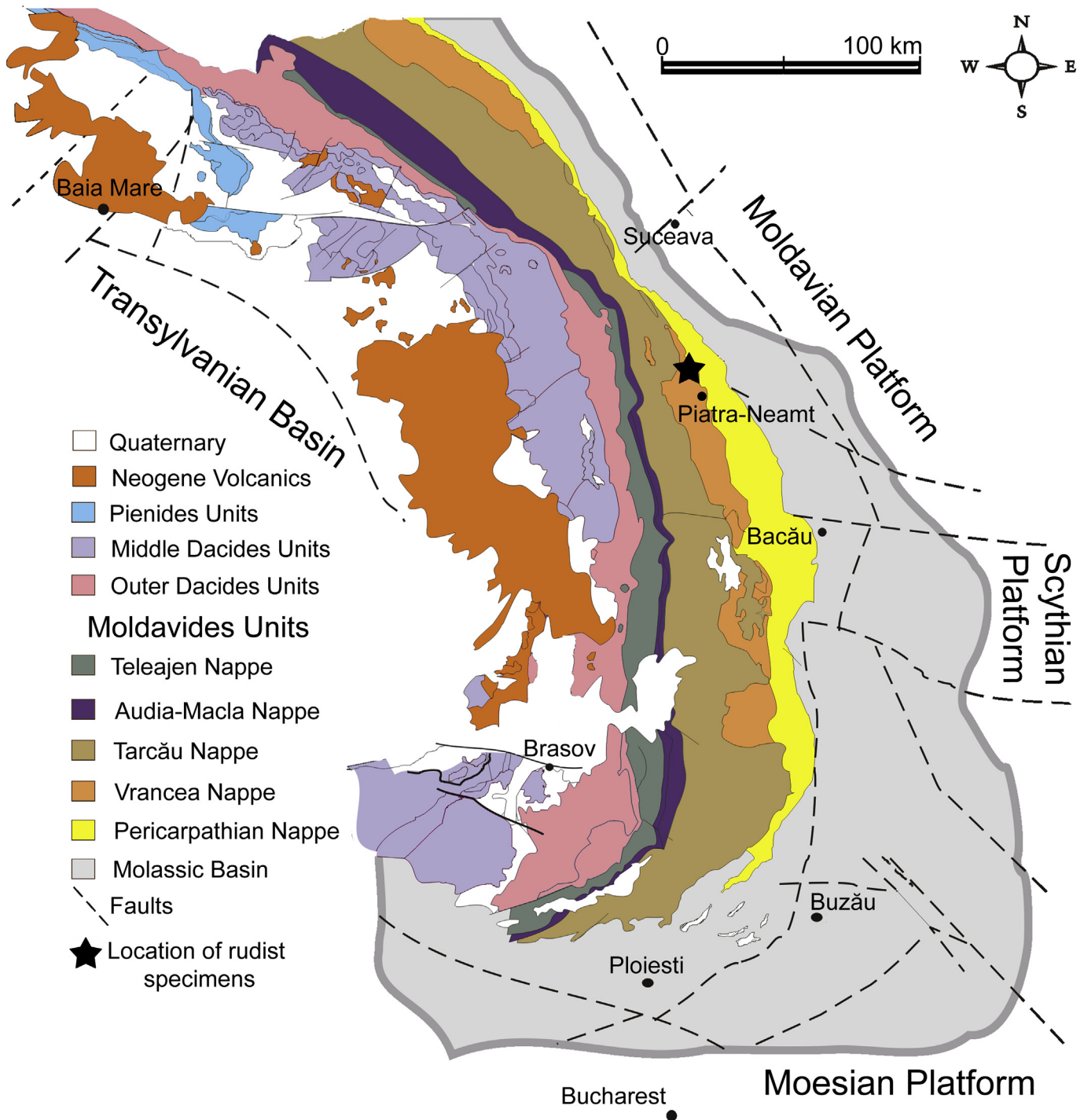


Fig. 1. Geological map of the Eastern Carpathians showing the *Orestella* locality (modified after Bădescu, 2005; Guerrera et al., 2012).

Campanian–Maastrichtian deposits of the 70 m thick Lepşa Formation that crops out in the Cuejdiu Valley (Guerrera et al., 2012). The stratigraphic succession is characterized by grey sandy marls, locally interlayered with coarse-grained beds, such as calcareous turbidites, siliciclastic turbidites and conglomerates/breccias with limestone and green-schist clasts (Guerrera et al., 2012). It is possible that the specimens of *Orestella* collected by Mirăuță and Mirăuță (1964) originated from this breccia level with limestone and green-schist clasts.

3. Materials and methods

The studied material was described by Lupu (1972) and is currently housed in the collection of the Geological Museum of Romania in Bucharest. Although the original description of this new taxon indicated the existence of five specimens (Lupu, 1972), the second author of this study could identify only three specimens of *Orestella* (see photos of the holotype and paratypes I and II, Figs. 2–4). In order to establish the validity of the genus

Download English Version:

<https://daneshyari.com/en/article/4747081>

Download Persian Version:

<https://daneshyari.com/article/4747081>

[Daneshyari.com](https://daneshyari.com)