

## Note e Comunicazioni

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### *Calappa praelata* Lörenthey in Lörenthey & Beurlen, 1929 (Decapoda, Brachyura, Calappidae) from the Middle Miocene of Tresnuraghes (Oristano, Sardegna, Italy)

**Abstract** - We report *Calappa praelata* Lörenthey in Lörenthey & Beurlen, 1929 (Calappidae De Haan, 1833), based upon one single carapace, three-dimensionally preserved, from the Middle Miocene of Tresnuraghes (Oristano, Sardegna, Italy). It is the first record of this species in Sardegna and Italian territory, enlarging the knowledge of distribution and its stratigraphic range in the paleo-Mediterranean basin. The species is already known from Middle-Upper Miocene of Hungary, Poland, Austria, Malta, and Spain.

**Key words:** Decapoda, Brachyura, Calappidae, Middle Miocene, Sardegna, Italy.

**Riassunto** - *Calappa praelata* Lörenthey in Lörenthey & Beurlen, 1929 (Decapoda, Brachyura, Calappidae) nel Miocene medio di Tresnuraghes (Oristano, Sardegna, Italia).

Si tratta della prima segnalazione di questa specie in Sardegna e in Italia. Questo ritrovamento amplia le conoscenze sulla sua distribuzione areale e stratigrafica nel bacino paleo-Mediterraneo. La specie è già conosciuta nel Miocene medio e superiore dell'Ungheria, Polonia, Austria, Malta e Spagna.

**Parole chiave:** Decapoda, Brachyura, Calappidae, Miocene medio, Sardegna, Italia.

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### Introduction and geological setting

The decapod fauna from the Sardegna has been reported by different authors (Meneghini, 1857; Mariani & Parona, 1887; Ristori, 1896; Lörenthey, 1909; Comaschi Caria, 1950, 1956; Marras & Ventura, 1991; De Angeli & Marangon, 1992; Marangon & De Angeli, 2009; Dieni, 2010). Among the Calappidae, Ristori (1896) and Lörenthey (1909) reported some incomplete specimens, today lost, assigned to *Calappa* sp. from the Miocene of different localities of Sardegna (De Angeli & Garassino, 2006). The studied specimen is ascribed to *Calappa praelata* Lörenthey in Lörenthey & Beurlen, 1929 (Calappidae De Haan, 1833). The specimen was collected loose and partially naturally washed and eroded because it was exposed on the surface of a field around Tresnuraghes (Oristano), western Sardegna (Italy) (P. Frediani, pers. comm., 2009). In this area rich fossiliferous marly limestones, calcareous marls and sandy layers crop out. These marine facies are referred to the Langhian (Middle Miocene) (De Angeli & Marangon, 1992; Marangon & De Angeli, 2009; A.A. V.V., 2010). Based upon sedimentary and stratigraphic data, the studied specimen has been referred to the Middle Miocene.

### Material

One small incomplete carapace, three-dimensionally preserved imbedded in a fragment of calcareous sand, exposed dorsally and lacking the frontal margin and parts of the original dorsal cuticle. The delicate remains of the cuticle have been stabilized by a thin film of polyvinyl acetate glue. The specimen is housed in the Palaeontological Collections of the Museo di Storia Naturale di Milano (MSNM). The systematic arrangement used in this paper follows the recent classification proposed by Ng *et al.* (2008) and De Grave *et al.* (2009).

### Systematic Palaeontology

Order Decapoda Latreille, 1802  
Infraorder Brachyura Linnaeus, 1758  
Subsection Heterotremata Guinot, 1977  
Superfamily Calappoidea De Haan, 1833  
Family Calappidae De Haan, 1833  
Genus *Calappa* Weber, 1795

Type species: *Cancer granulatus* Linnaeus, 1758, subsequent designation by Latreille 1810.

Included fossil species: see Schweitzer *et al.* (2010).

*Calappa praelata* Lörenthey in Lörenthey & Beurlen, 1929  
Fig. 1

*Calappa praelata* Lörenthey in Lörenthey & Beurlen, 1929: 132, pl. 6, fig. 3

*Calappa praelata* – Bachmayer 1962: 42. – Müller 1984a: 66, pl. 35, figs 1, 2, 7, pl. 36, fig. 6. – Müller 1984b: pl. 2, fig. 4. – Müller 1996: 9, pl. 1, fig. 11. – Müller 1998: 22. – Schweitzer *et al.* 2010: 83. – Gatt & De Angeli 2010: 1329, pl. 2, fig. 2.

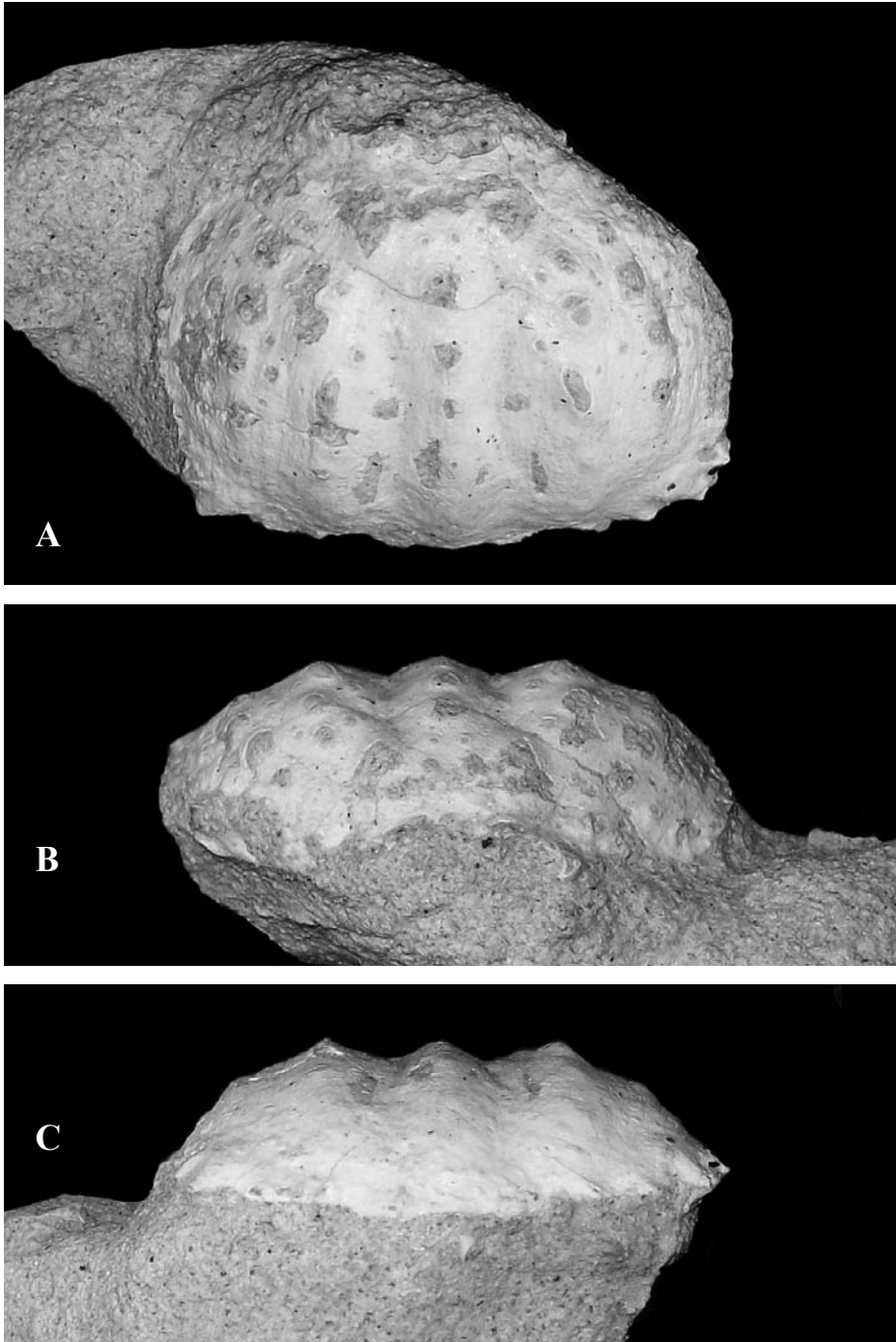


Fig. 1 - *Calappa praelata* Lörenthey in Lörenthey & Beurlen, 1929, MSNM i27768. A) carapace in dorsal view /carapace in norma dorsale. B) carapace in frontal view /carapace in norma frontale. C) carapace in posterior view /carapace in norma posteriore (x 3.2).

**Locality:** Tresnuraghes (Oristano), western Sardegna (Italy).

**Geological age:** Middle Miocene.

**Occurrence and measurements:** one single small carapace (MSNM i27768 - length of carapace: 23 mm; width of carapace: 28 mm).

**Description.** Carapace rounded, convex, subtrapezoidal in transverse section, with maximum thickness posteriorly; carapace wider than long (about 1.2 times as wide as long), expanded postero-laterally, with marginal triangular, moderately produced broad teeth; incomplete, prominent small front; incomplete arcuate orbits forwardly directed; convex anterolateral margins, with small teeth; lateral margins slightly converging anteriorly; posterolateral margins with 5-6 complete triangular, broad pointed spines on each side, the last one less developed, rounded, quite blunt; posterior margin slightly convex medially; carapace tuberculate; regions distinct with fairly deep longitudinal grooves separating axial from branchial regions and two shallow longitudinal grooves in each branchial region, the most lateral one less deep; all the grooves are sparsely tuberculate; strongly raised, longitudinal, dorsally rounded tuberculate ridges are present among the grooves; the lateral ones slightly convergent anteriorly; medial ridge stronger, bearing five large well-developed, often aligned tubercles; a similar arrangement, but less prominent also present on the two lateral ridges; posterior dorsal part of the carapace elevated and sparsely granulate.

**Discussion.** The main characters allow assignement of the studied specimen to *Calappa* Weber, 1795 (*Calappidae* De Haan, 1833). The studied specimen has been compared with *Calappa praelata* Lörenthey in Lörenthey & Beurlen, 1929, from the Middle-Upper Miocene of Hungary, Poland, Austria, Spain, and Malta (Lörenthey, 1929 in Lörenthey & Beurlen, 1929; Veiga Ferreira, 1954, Bachmayer, 1962; Förster, 1979; Müller, 1984a, 1984b, 1996, 1998; Gatt & De Angeli, 2010) and with *C. heberti* Brocchi, 1883, from the Upper Miocene of Hungary (Müller, 1984). Some morphological characters, such as the posterolateral margins with 5-6 complete, triangular, broad pointed spines on each side (posterolateral margins spineless in *C. heberti*) and the strongly raised longitudinal ridges, bearing five large well-developed, often aligned tubercles (weak rounded longitudinal tuberculate ridges in *C. heberti*), allow ascribing the studied specimen to *Calappa praelata*. This species, highly similar to the fossil and extant *C. granulata* Linnaeus, 1758, was widespread during the Miocene in the Mediterranean area where it was probably the ancestor of *C. granulata*.

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