

# A new squat lobster (Crustacea, Anomura, Munididae) from the Pliocene of Monterotondo Marittimo (Tuscany, Italy)

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**Abstract** - We report a new species of squat lobster from the Pliocene of Monterotondo Marittimo (Grosseto, Tuscany, Italy). The specimens have been assigned to the fossil and extant *Munida* Leach, 1820, with *M. grossetana* n. sp. (Munididae Ah Yong, Baba, MacPherson & Poore, 2010). *Munida grossetana* n. sp. represents the first report for the genus in the Mediterranean area, enlarging the palaeogeographic distribution for the genus.

**Key words:** Crustacea, Decapoda, Anomura, Pliocene, Italy.

**Riassunto** - Un nuovo galateide (Crustacea, Anomura, Munididae) della Pliocene di Monterotondo Marittimo (Toscana, Italia).

Si segnala una nuova specie di galateide del Pliocene di Monterotondo Marittimo (Grosseto, Toscana, Italia). Gli esemplari sono stati assegnati al genere fossile e vivente *Munida* Leach, 1820, con *M. grossetana* n. sp. (Munididae Ah Yong, Baba, MacPherson & Poore, 2010). *Munida grossetana* n. sp. rappresenta la prima segnalazione del genere nell'area del Mediterraneo, ampliando la distribuzione paleogeografica del genere.

**Parole chiave:** Crustacea, Decapoda, Anomura, Pliocene, Italia.

## INTRODUCTION

Specimens of *Munida grossetana* n. sp. were collected from the Pliocene rocks of Monterotondo Marittimo, located in the Grosseto province (Tuscany, Italy) close to the Metalliferi Mounts (43°08'46"N 10°51'20"E). The studied specimens, discovered in grey poorly fossiliferous clays, are usually associated with rare small-sized molluscs (mainly bivalves) and irregular echinoids, that are strongly compressed (*Schizaster?* Pasini pers. comm., 2007). Indeterminate organic material is also present. Deposition

and its discontinuity indicate an environment characterized by chaotic sedimentation in the presence of more or less wide submarine conoids. Moreover calcareous tubes of the suspension feeder serpulid worm *Ditrupa cornea* (Linnaeus, 1767), an important component of the muddy benthic community in unstable detrital environments, occur widespread in the muddy-clay marls in small aggregations or as single loose individuals, supporting the presence of a turbiditic environment (Pasini pers. comm., 2007). The marly marine deposits of the studied area are dated to the early-middle Pliocene (Carta Geol. d'Italia., foglio 119, Massa Marittima, 1:100000). We ascribed the studied specimens to the Pliocene *sensu lato* because of the absence of chronostratigraphic data (Bisconti pers. comm., 2007). De Angeli *et al.* (1996) reported the brachiurans *Raninoides pliocenicus* De Angeli, Garassino & Pasini, 1996; *Monodaes bortolottii* Delle Cave, 1988; *Goneplax gulderi* Bachmayer, 1953; *Astenognathus* sp. Later, Garassino *et al.* (2013) also reported *Albaidaplex ispalensis* Garassino, Pasini & Castro, 2013.

## MATERIALS AND METHODS

The two studied specimens are three-dimensionally preserved with intact cuticle within a fossiliferous greenish clay. They are assigned to *Munida* Leach, 1820, with *M. grossetana* n. sp. (Munididae Ah Yong, Baba, MacPherson & Poore, 2010) and housed in the palaeontological collection of the Museo di Storia Naturale di Milano (MSNM).

**Abbreviations:** lcxp: carapace length (including rostrum); lr: rostrum length; wxcp: carapace width.

## SYSTEMATIC PALAEOLOGY

Infraorder Anomura MacLeay, 1838  
Superfamily Galatheoidea Samouelle, 1819  
Family Munididae Ah Yong, Baba, MacPherson & Poore, 2010  
Genus *Munida* Leach, 1820

**Type species:** *Pagurus rugosus* Fabricius, 1775, by monotypy.

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**Fossil species:** *Munida grossetana* n. sp. (this study); *M. konara* Schweitzer & Feldmann, 2000; *M. nishioi* Karasawa, 1993; *M. ogaensis* (Hatai & Kotaka, 1970); *M. primaeva* Segerberg, 1900; *M. quadrolonga* Schweitzer & Feldmann, 2000.

*Munida grossetana* n. sp.

Fig. 1

**Etymology:** The trivial name alludes to Grosseto, regional capital where the fossiliferous locality is located.

**Holotype:** MSNM i28256.

**Paratype:** MSNM i28257.

**Type locality:** Monterotondo Marittimo (Grosseto, Tuscany, Italy).

**Geological age:** Pliocene *sensu lato*.

**Material and measurements:** Two complete carapaces (one without rostrum). MSNM i28256 – lcxp: 5 mm; lr: 2 mm; wcxp: 5 mm; MSNM i28257 – lcxp: 4 mm; wcxp: 4 mm.

**Diagnosis:** Carapace (excluding rostrum) as long as wide; rostrum slender and spiniform; carapace with transverse striae well spaced; gastric region without epigastric spines; anterolateral margin with one spine; branchial and posterolateral margins smooth.

**Description:** Carapace (excluding rostrum) as long as

wide, slightly convex laterally; dorsal striae and cervical groove well distinct; gastric region convex and without epigastric spines; epigastric, hepatic, cardiac, intestinal, and branchial regions spineless; all regions with entire transverse striae well spaced, with very few secondary striae; anterior and posterior cervical groove deep; rostrum elongate, dorsally ridged, laterally armed with three spines; supraocular spine small, subparallel, close to rostrum; anterolateral margin with one small anterolateral spine situated at anterolateral angle, not reaching level of sinus between rostrum and supraocular spine; branchial and posterolateral margins smooth.

**Discussion:** According to Poore (2004) the studied specimens are assigned to the fossil and extant *Munida* in having carapace with distinct transverse striae, slender spiniform rostrum, and frontal margin of carapace without spine mesiad to anterolateral spine. The studied specimens are further assigned to Munididae Ahyong, Baba, MacPherson & Poore, 2010, for having a slender spiniform rostrum and for the presence of the supraocular spines. Previously *Munida* was assigned to Galatheididae Samouelle, 1819, by Schweitzer *et al.* (2010). However, based upon the recent classification proposed by Ahyong *et al.* (2010), this genus fits better within the Munididae. Schweitzer *et al.* (2010) assigned five fossil species to *Munida*: *M. konara* Schweitzer & Feldmann, 2000, from

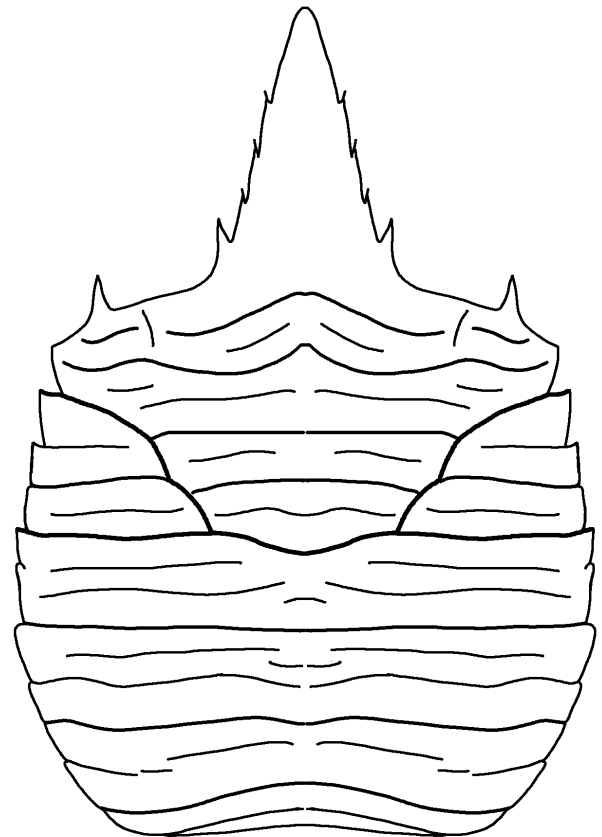


Fig. 1 - *Munida grossetana* n. sp. A) Holotype, MSNM i28256, dorsal view ( $\times 14$ ). B) Idealized reconstruction of dorsal carapace.

the late Oligocene - early Miocene of Alaska; *M. nishioi* Karasawa, 1993, from the middle Eocene of Japan; *M. ogaensis* (Hatai & Kotaka, 1970) from the middle-late Miocene of Japan; *M. primaeva* Segerberg, 1900, from the Danian of Denmark; *M. quadrolonga* Schweitzer & Feldmann, 2000, from the Eocene of Bainbridge Island (WA, United States) (Segerberg, 1900; Hatai & Kotaka, 1970; Karasawa, 1993; Schweitzer & Feldmann, 2000).

Based on the main characters of the above-mentioned species, we justify the description of *Munida grossetana* n. sp. for the rostrum, slender and spiniform with three lateral spines, for one anterolateral spine, and for the branchial and posterolateral margins smooth (vs. rostrum with three spines and three anterolateral spines in *M. konara*; vs. lateral margins with six spines in *M. nishioi*; vs. lateral margins with several spines in *M. ogaensis*; vs. rostrum needle-like and spineless and lateral margins with several spines in *M. primaeva*; vs. rostrum needle-like and spineless, three anterolateral spines, and several posterolateral spines in *M. quadrolonga*).

*Munida grossetana* n. sp. represents the youngest record for the genus in the fossil record and the first report of *Munida* in the Mediterranean area, extending the palaeogeographic distribution for the genus.

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