

PERSISTISTROMBUS LATUS-BEARING DEPOSITS SOUTH OF ISOLA DI CAPO RIZZUTO, CALABRIA (SOUTHERN ITALY)

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ABSTRACT: Bracchi V.A., Nalin R. & Basso D., *Persististrombus latus-bearing deposits south of Isola di Capo Rizzuto, Calabria (Southern Italy)*. (IT ISSN 0349-3356, 2011)

During a research fieldtrip in the Crotona peninsula - an area characterized by a flight of well developed Pleistocene marine terraces - a level rich of in situ *Persististrombus latus* GMELIN 1791 (= *Strombus bubonius* LAMARCK 1822) has been discovered in a quarry south of Isola di Capo Rizzuto (Calabria, southern Italy) at ~ 46 m above sea level. *P. latus* is a shallow warm-water marine gastropod belonging to the Strombidae family. Presently, it lives along the tropical coasts of Africa but entered the Mediterranean through the Gibraltar Strait in the late Pleistocene as part of the so-called Senegalese fauna. *P. latus* found as fossil in the Mediterranean is commonly considered a marker of Marine Isotope Stage (MIS) 5.5. This is the first documented record of a level containing multiple specimens of in situ *P. latus* in the Crotona terraces, allowing direct correlation to the Tyrrhenian Stage or MIS 5.5. The bio-calcarene and associated *P. latus* specimens have been collected in order to petrographically analyze the sediment and describe the benthic association.

RIASSUNTO: Bracchi V.A., Nalin R. & Basso D., *Persististrombus latus* in depositi di terrazzo marino a sud di Isola di Capo Rizzuto, Calabria (Italia). (IT ISSN 0349-3356, 2011)

Durante una campagna di ricerca nella penisola di Crotona, area caratterizzata dalla presenza di terrazzi marini ben sviluppati, è stato rinvenuto un livello ricco di Persististrombus latus GMELIN 1791 (= Strombus bubonius LAMARCK 1822) in situ, in una cava posta a sud di Isola di Capo Rizzuto (Calabria, Italia) a circa 46 m di altitudine. P. latus è un gasteropode di acque calde e poco profonde della famiglia Strombidae. E' tuttora vivente lungo le coste tropicali africane, ma si introdusse nel Mar Mediterraneo attraverso lo Stretto di Gibilterra nel tardo Pleistocene, come membro della fauna detta Senegalese.

P. latus viene comunemente considerato un marker dello Stadio Isotopico Marino (MIS) 5.5. Questo è il primo ritrovamento documentato di un livello contenente molteplici esemplari in situ di P. latus nell'area dei terrazzi crotonesi, permettendo una correlazione diretta con lo Stadio Tirreniano o MIS 5.5. La bio-calcarene associata ed esemplari di P. latus sono stati campionati al fine di analizzare petrograficamente il sedimento e descrivere l'associazione benthica.

Keywords: *Persististrombus latus*, Pleistocene, Tyrrhenian stage, MIS 5.5, Calabria, Crotona Peninsula

Parole chiave: *Persististrombus latus*, Pleistocene, Tirreniano, MIS 5.5, Calabria, Penisola di Crotona.

During a fieldtrip in the Crotona peninsula, aimed at the study of the biogenic deposits of the Le Castella and Capo Colonna marine terraces, multiple specimens of *Persististrombus latus* GMELIN 1791 (= *Strombus bubonius* LAMARCK 1822) were discovered in a quarry located south of Isola di Capo Rizzuto (Calabria, Italy).

P. latus is a shallow warm-water marine mollusc of the Strombidae family, presently living exclusively on the tropical coasts of Africa. However, *P. latus* is commonly found as fossil in late Pleistocene deposits of the Mediterranean region, being a representative of the so-called 'Senegalese' fauna which entered the Mediterranean through the Gibraltar Strait in the mid-late Pleistocene (GIGNOUX, 1913; ISSEL, 1914; SELLI, 1962; RUGGIERI *et al.*, 1968; ISSAR A., 1969; BONFIGLIO, 1972; 1981; DI GRANDE & SCAMARDA, 1973; HERM *et al.*, 1975; FLEISCH *et al.*, 1981; PORTA & MARTINELLI, 1981; CATALIOTTI VALDINA, 1984;

BOSSIO *et al.*, 1986; HEARTY & DAI PRA, 1986; CALDARA, 1987; FLORES *et al.*, 1987; GLIOZZI, 1987; SPANÒ, 1991; 1993; CAUSS *et al.*, 1993; LARIO *et al.*, 1993; SIVAN *et al.*, 1994; KÉRAUDREN *et al.*, 2000; JEDOU *et al.*, 2003; ZAZO *et al.*, 2003; FEDERICI & PAPPALARDO, 2006). *P. latus* has historically become a characteristic marker of MIS 5.5 and the Tyrrhenian (the last faunal stage of the Pleistocene in Mediterranean area) (GIGNOUX, 1913; ISSEL 1914; CITA & CASTRADORI, 1995) and is commonly used to correlate and chronologically constrain deposits of raised beaches (e.g. HEARTY, 1986; FERRANTI *et al.*, 2006).

The Crotona Peninsula is characterized by the presence of well developed Pleistocene marine terraces, generated by the interplay of sea-level change and progressive uplift of the Calabrian arc. These terraces were first reported by CORTESE (1895) and were subsequently studied by several authors from a geomorphic, stratigraphic,

sedimentologic, paleontologic and geochronologic point of view (GIGNOUX, 1913; RUGGIERI 1948; 1951; SELLI, 1962; GUEREMY, 1972; BELLUOMINI *et al.*, 1987; GLIOZZI, 1987; COSENTINO *et al.*, 1989; PALMENTOLA *et al.*, 1990; MAUZ & HASSLER, 2000; ZECCHIN *et al.*, 2004; 2010; NALIN *et al.*, 2006; 2007; NALIN & MASSARI, 2009).

SELLI (1962) was the first to report the occurrence of *P. latus* in one of the terraces, at an elevation between 45 and 55 m above sea level (asl), but did not provide details of the finding.

GLIOZZI (1987) reported the occurrence of very rare *P. latus* specimens on dislocated blocks from the area of Campolongo, north of Le Castella village, 80 m asl, and identified a unique S. Leonardo di Cutro-Campolongo-Isola di Capo Rizzuto terrace correlated to MIS 5.5.

PALMENTOLA *et al.* (1990) located patches of a marine terrace between Capo Cimiti (15 m asl) and La Mazzotta (84 m asl) with a typical warm water fauna correlated to MIS 5.5, but found only one specimen of *P. latus* in this terrace on a dislocated block.

In recent restoration works of the aragonese castle of Le Castella, a block of calcarenite containing numerous *P. latus* specimens was included in the stone pavement of the platform that protects the southern portion of the castle from wave washout. Reasoning that the block should have been extracted from a nearby quarry, a careful search of recently active quarries led to the finding of a level preserving several in situ *P. latus* specimens (5 specimens in a surface exposure area of ~ 2 m²) and other five specimens in piled blocks extracted from the quarry deposits. The quarry is located south of the Isola di Capo Rizzuto village, in a morphological terrace (between 41 and 57 m asl) that is part of the S. Leonardo-Campolongo-Isola di Capo Rizzuto terrace of GLIOZZI (1987). (GPS position of the surface with in situ *P. latus*: N38 56.566 E17 04.444; approximate elevation: 46 m asl). The *P. latus* specimens are sparsely distributed on the exposed surface, and are larger than 5 cm in size. They are contained in a monotonous succession of cross-stratified medium to coarse calcarenite, showing gentle clinostratification towards the south. Other bioclasts include large disarticulated bivalve valves (most likely *Glycimeris* sp.)

This level is the first documented occurrence of *in situ* multiple specimens of *P. latus* in the area of Isola di Capo Rizzuto and allows correlating these outcrops with MIS 5.5.

The recorded elevation is concordant with SELLI (1962) and intermediate with respect to the other reports on dislocated blocks (GLIOZZI, 1987; PALMENTOLA *et al.*, 1990). The latter discrepancy could be ascribed to the patchy and tectonically disturbed distribution of the MIS 5.5 deposits in the

Crotone peninsula area (GLIOZZI, 1987; COSENTINO *et al.*, 1989; ZECCHIN *et al.*, 2004).

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