

NOTA BREVE-SHORT NOTE

**EUSPIRA MAGENESI, A NEW SPECIES OF THE NATICIDAE (GASTROPODA)
FROM THE PLIOCENE OF ITALY**

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Riassunto. Viene descritta e figurata *Euspira magenesi* nuova specie di Naticidae rinvenuta in depositi argilloso-sabbiosi pliocenici esposti nelle località di Rio Rosello (Emilia, provincia di Piacenza) e Villalvernia (Piemonte, provincia di Alessandria). La specie, di piccola taglia, è caratterizzata da sutura canalicolata, ombelico abbastanza ampio e profondo, nonché dall'apertura prolungata abapicalmente. Si tratta di un elemento poco comune, probabilmente infralitorale e legato a facies di transizione tra paleobiocenosi analoghe a quelle attuali mediterranee SFBC e DC.

Abstract. The new naticid species *Euspira magenesi* is described and figured. The type-material was recovered from Pliocene deposits exposed along the stream Rio Rosello (Emilia region, Piacenza province) and near Villalvernia (Piedmont, Alessandria province). The small-sized *Euspira magenesi* is featured by channeled suture, open, rather wide umbilicus and abapically produced aperture. It is an uncommon infralittoral element likely related to ecotones between paleobiocenoses similar to the modern Mediterranean SFBC and DC.

Introduction

In the course of field work aiming to recover naticids from the Pliocene outcrops along the stream named Rio Rosello near Sariano (Piacenza province), ten specimens of a small polinicine species were found. The material was obtained from a lenticular body of clayey sand that crops out on the right bank of Rio Rosello, about 280 m south west of Case Badini di Sopra (Fig. 1). The calcareous nannofossil contents of the sandy clay resulted to be mostly reworked and gave a general Pliocene age (P. Maiorano, written communication, 2000). According to S. Raffi (oral communication, 2001), this lithotype belongs to the Monte Zago Unit of Piacenzian age as treated by Roveri et al. (1998). An

additional specimen was recovered later on in Piedmont, from a layer of fine sand exposed on the right bank of the stream Rio Vaccaruzza northeast of Villalvernia (Fig. 1). The sandy layer pertains to the uppermost part of the Pliocene formation known as Argille di Lugagnano (Lugagnano Clay). For further information on this latter locality, reference can be made to Brambilla (1976).

The species, that fits in with the characters of the genus *Euspira* Agassiz in J. Sowerby, 1837, after thorough examination of literature data and of number of Neogene naticids in the Bellardi-Sacco collection (University of Torino), proved to be previously undescribed and is discussed and figured herein.

Systematic account

The suprageneric arrangement is that adopted in recent major revisions of the Family Naticidae (Kilburn 1976; Marinovich 1977; Majima 1989). We follow Majima (1989) and Bouchet & Waren (1993) in ranking *Euspira* Agassiz in J. Sowerby, 1837 as a full genus of the subfamily Polinicinae.

The bulk of the studied material is housed in the Museo G. Cortesi di Castell'Arquato (MGC); paratype 551/GF (unfigured) is stored in the Museo di Ecologia e Storia Naturale di Marano sul Panaro, Modena, paratype 23957 (unfigured) in the Collezione Malacologica of the Museo di Geologia e Paleontologia G. Cappellini, Bologna and paratype MZB 18569 (unfigured) in the Laboratorio di Malacologia, Bologna.

Symbols for shell dimensions are: NW, number of whorls; PD, diameter of the protoconch; H, height of the shell; D, maximum diameter; ha, height of the aperture; MSA, mean spire angle.

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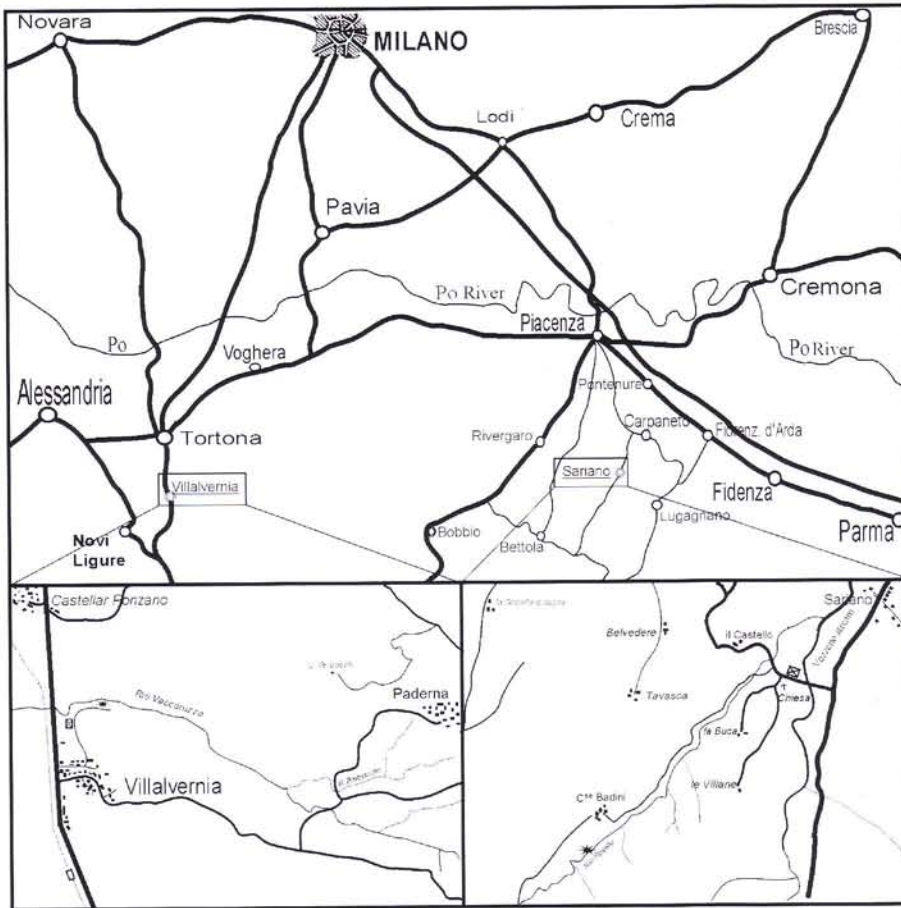


Fig. 1 - Location map of the type-locality of *Euspira magenesi* sp. n. (bottom, right) and of the outcrop near Villalvernia (bottom, left).

Family Naticidae Forbes, 1838

Subfamily Polinicinae Finlay & Marwick, 1937

Genus *Euspira* Agassiz in J. Sowerby, 1837

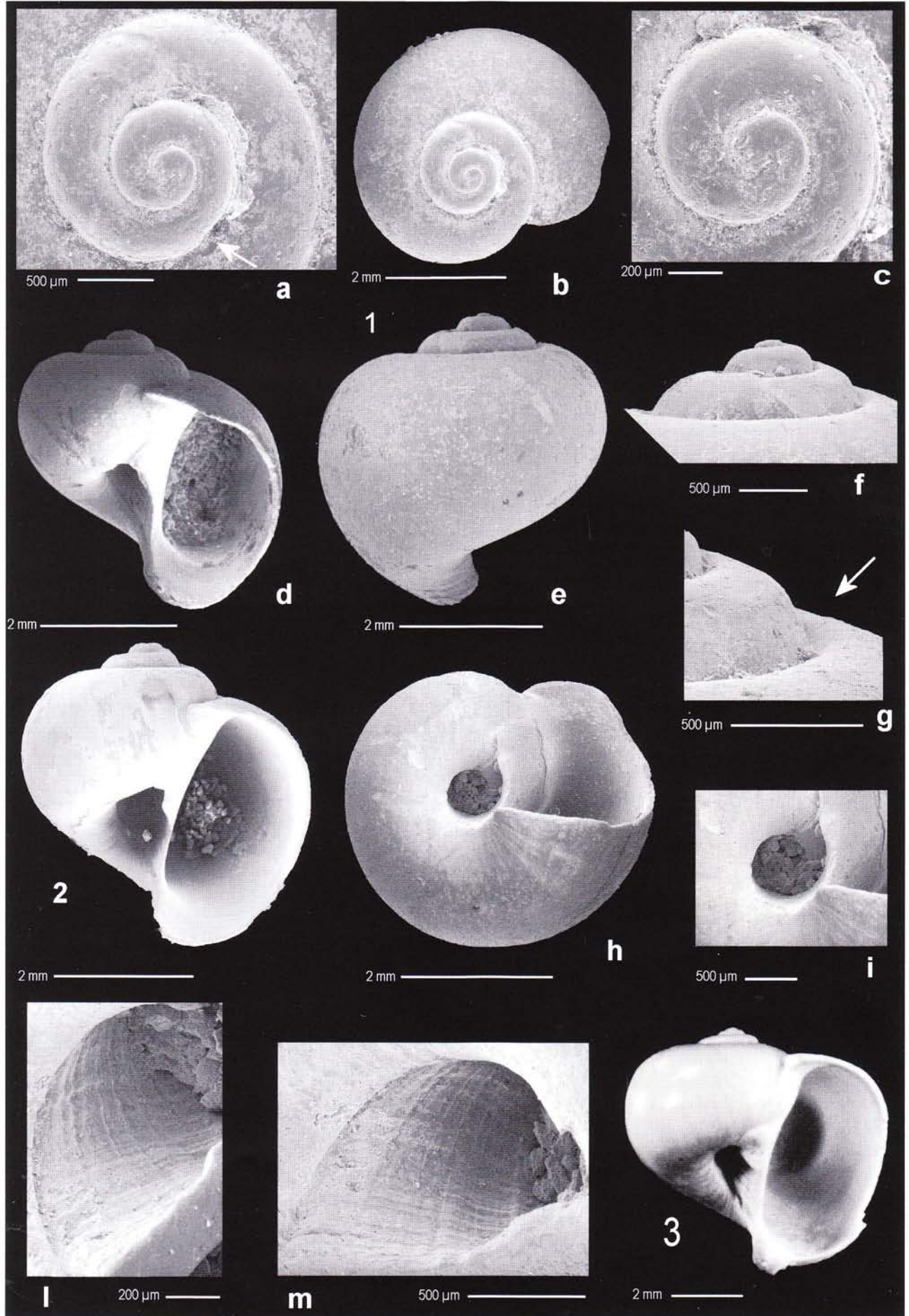
The Eocene *Natica glaucinoides* J. Sowerby, 1812 is the type-species by subsequent designation (Bucquoy, Dautzenberg & Dollfus 1883, p. 143). The synonymy of *Natica glaucinoides* with *Natica labellata* Lamarck, 1804, stated by Cox (1930) and accepted later on by several authors, was rejected by Wrigley (1949) who regarded the two species as distinct and redescribed Sowerby's taxon. According to Kabat (1991), *Laguncula* Benson, 1842, *Bensonina* Gray, 1847, *Lunatia* Gray, 1847, *Ampul-tonatica* Sacco, 1890, *Labellinacca* Cossmann, 1918, *Dal-litesta* Mansfield, 1930, *Scarlatia* Schileyko, 1977 and *Pseudopolinices* Golikov & Sirenko, 1983 are synonyms of *Euspira*.

The diagnostic characters of *Euspira* are 1) shell thin to moderately thick, globose or globose-elongate, 2) protoconch low-turbiniform of 1.5-2.5 smooth whorls, 3) spire depressed to moderately elevated, somewhat stepped in some species, 4) suture weakly impressed to channeled, 5) umbilicus open and deep, narrow to wide, 6) funicle weak to absent, 7) parietal callus moderately thick, slender, with distinct anterior lobe slightly overhang-ing the adapical part of the umbilicus, 8) umbilical callus indistinct to moderately developed, merging into the anterior lobe of the parietal callus or demarcated from it by a weak groove, 9) corneous operculum.

Euspira is a distinctive cosmopolitan genus useful to accomodate polinicine species with the open (not slit-like) umbilicus virtually devoid of funicle and with strongly reduced to absent umbilical callus. Six well known species from the Italian Pliocene do belong to *Euspira*, namely *Natica fusca* de Blainville, 1825, *Lunatia grossularia* Marche-Marchad, 1957, *Natica guillemini* Payraudeau, 1826, *Nerita helicina* Brocchi, 1814, *Natica macilenta* Philippi, 1844 and *Natica pulchella* Risso, 1826. Sacco (1891) created several varieties of *Euspira catena* (Da Costa, 1778) that, at least partly, belong here. They will be dealt with in a forthcoming revision of Pliocene naticids (Pedriali & Robba, in preparation).

PLATE 1

- Fig. 1 - *Euspira magenesi* sp. n. Holotype. Rio Rosello. MGC 567; a) apical whorls (the protoconch-teleoconch transition indicated by arrow), b) top view, c) protoconch, d) apertural side, e) abapertural side, f) spire, g) detail of the channeled suture (arrow), h) base, i) umbilical cavity, l) and m) sculpture of the umbilical wall.
- Fig. 2 - *Euspira magenesi* sp. n. Paratype. Rio Rosello. MGC 568; apertural side.
- Fig. 3 - *Euspira magenesi* sp. n. Paratype. Villalvernia, MGC 573; apertural side.



Euspira magenesi sp. n.

Pl. 1, fig. 1-3

Derivation of name. The species is named after Paolo Magenes who provided the type-material.

Holotype. Rio Rosello: MGC 567 (Pl.1, fig. 1a-m).

Paratypes. Rio Rosello: 5 spms., MGC 568-572; 1 spm., 551/GF; 1 spm., 23957; 1 spm., MZB 18569; Villalvernia: 1 spm., MGC 573.

Preservation. Except for minor damages of the peristome in some specimens, the preservation is fair.

Type-locality. Right bank of the stream Rio Rosello, 280 m south west of Case Badini di Sopra near the village of Sariano (Piacenza).

Horizon. Lens-shaped intercalation of clayey sand in the Monte Zago Unit, Lower Piacenzian.

Diagnosis. Depressed-globose, thin shell with moderately high to depressed, somewhat stepped spire. Protoconch of 1.75-2 smooth whorls. Sutures channeled. Umbilicus wide and deep, bounded by a sharp angulation. Umbilical wall excavated, sculptured with spiral cords crossed by coarse growth lines. Aperture high, produced abapically. Parietal callus with slender anterior lobe reaching the basal fasciole. Funicle wanting. Umbilical callus moderately developed, attached to the adapical part of the umbilicus and merging into the anterior lobe of the parietal callus.

Description. Shell small, only slightly exceeding 7 mm in height, thin, depressed-globose, with moderately elevated, obtuse spire that is about 20 % of the shell height. Protoconch low-turbiniform of 1.75-2 apparently smooth whorls, faintly but distinctly demarcated from the teleoconch because of change in the shell texture; the diameter averages 0.93 mm. Spire somewhat stepped, whorls convex, meeting at deeply and broadly channeled sutures. Body whorl large, somewhat depressed, rather quickly expanding and produced abapically toward the aperture; periphery slightly above midline. Umbilicus wide and deep exposing earlier whorls, clearly demarcated from base by a sharp angulation; umbilical wall descending steeply to a narrow and shallow spiral groove, then excavated to form a broad spiral depression sculptured with uneven, low spiral cords crossed by coarse growth markings resulting in an irregular square-reticulated pattern. Basal fasciole poorly differentiated. Aperture ovately D-shaped, slightly oblique, markedly produced abapically, nearly as high as twice its width. Parietal callus thin to moderately thick, reaching the basal fasciole; anterior lobe slender, with pointed edge slightly extending over the adapical part of the umbilicus. Funicle absent. Umbilical callus moderately developed, triangular to semicircular, occasionally with faint transverse furrow; it attaches to the adapical part of the umbilicus and merges into the anterior lobe of the parietal callus. Operculum unknown, supposed to be corneous.

Outer surface smooth except for dense, thin growth lines that are coarser over the basal fasciole; a faint spiral striation is noted on lower base. Nicely preserved specimens exhibit a yellowish background with fine, distant reddish collabral lines, in some instances

restricted to part of the body whorl; sutural channel reddish-brown, with adaxial blackish band.

Dimensions (mm):	NW	PD	H	D	ha	MSA
MGC 567 (holotype)	4.00	0.92	4.03	4.05	3.31	100°
MGC 568	4.25	0.89	4.31	4.16	3.41	96°
MGC 569	4.50	0.95	-	-	-	-
MGC 570	4.75	-	-	8.00	-	-
MGC 571	4.00	-	3.58	4.02	2.63	105°
MGC 572	4.10	-	3.65	4.13	3.07	115°
MGC 573	4.75	0.96	7.05	7.44	6.41	109°

Remarks. The present new species fully matches the characters of the genus *Euspira* Agassiz in J. Sowerby, 1837 as summarized above, and shares the most significant features with *Euspira glaucinoides* (J. Sowerby, 1812). The type-species has markedly globose shell with higher spire, impressed suture and somewhat smaller umbilicus devoid of inner spiral sculpture.

Euspira magenesi is easily distinguished from the others *Euspira* species in combining 1) somewhat stepped spire, 2) channeled sutures, 3) depressed body whorl, 4) widely open umbilicus, 5) sculptured umbilical wall and 6) high, abapically produced aperture. The Miocene North European *Euspira nysti* (d'Orbigny, 1852) and *Euspira gottschei* (Kautsky, 1925) are closely related, but have lower and broader, more distinctly D-shaped aperture (cf. Janssen 1984, pl. 55, figs. 4, 5). *Euspira fusca* (de Blainville, 1825), *Euspira grossularia* (Marche-Marchad, 1957), *Euspira guillemini* (Payraudeau, 1826), *Euspira helicina* (Brocchi, 1814), *Euspira macilenta* (Philippi, 1844) and *Euspira pulchella* (Risso, 1826), occurring in Pliocene deposits of Italy, attain a larger size, have more globose, more robust shell with higher spire and smaller umbilicus.

The channeled suture is clearly developed in the Recent North Atlantic *Euspira montagui* (Forbes, 1838). This species, also small-sized, differs from *Euspira magenesi* in having more globose shell, larger protoconch (1.2 mm in diameter) with spirally sculptured first whorl, lower and broader aperture and unsculptured umbilical wall.

The spiral sculpture of the umbilical wall occurs rather commonly in species of the polinicine genus *Glossaulax* Pilsbry, 1929 (cf. Majima 1989) whereas it is unusual in *Euspira*. It is noted in *Euspira catena* (Da Costa, 1778) and appears to be particularly coarse in Pliocene specimens from Belgium. In the northeastern Pacific area (cf. Maricovich 1977), the Miocene to Recent *Polinices* (*Euspira*) *lewisii* (Gould, 1847) and the Pliocene to Recent *Polinices* (*Euspira*) *draconis* (Dall, 1903) exhibit a spirally sculptured umbilical wall. All these species differ from *Euspira magenesi* in several respects and none of them has either channeled sutures or an abapically produced aperture.

Euspira magenesi is an uncommon taxon so far recovered from Piacenzian deposits of Piedmont and western Emilia regions. The rather fragile shell and the small size likely have contributed to the failure to find specimens in the past. Further work may expand the distribution and refine the stratigraphic range that, on the basis of the present material, appears to be restricted to the Upper Pliocene.

It is difficult to infer the paleoecological meaning of *Euspira magenesi* due to the scanty records. In the type-locality, it belongs to a fossil association characterized by the abundant occurrence of *Circomphalus foliaceolamellosus* (Dillwyn, 1817) and *Callista italica* (DeFrance, 1818), and interpreted (S. Raffi, oral communication, 2001) as an infralittoral ecotone between Pliocene counterparts of the modern Mediterranean biocoenoses SFBC (Biocoenosis of Fine Well Sorted Sand) and DC (Biocoenosis of the Coastal Detritic). The mollusk association at Villalvernia compares more closely to a modern SFBC biocoenosis. Accordingly, *Euspira megenesi* is likely to be regarded as a tolerant sand-related, infralittoral element that has dwelled in SFBC-influenced Pliocene settings.

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