



http://app.pan.pl/SOM/app61-Scarponi_etal_SOM.pdf

SUPPLEMENTARY ONLINE MATERIAL FOR

Middle Miocene conoidean gastropods from western Ukraine (Paratethys): Integrative taxonomy, palaeoclimatological and palaeobiogeographical implications

Daniele Scarponi, Giano Della Bella, Bruno Dell'Angelo,
John Warren Huntley, and Maurizio Sosso

Published in *Acta Palaeontologica Polonica* 2016 61 (2): 327-344.
<http://dx.doi.org/10.4202/app.00158.2015>

Supplementary Online Material

SOM 1.

Fig. 1. Photographs of the investigated outcrops.

Fig. 2. Visual depiction of the shell terminology and characters.

Fig. 3. Conoidean gastropods from early Serravallian of western Ukraine.

Fig. 4. Photomicrographs and SEM images of shell features of relevant taxa.

SOM 2. Quantitative evaluation of morphological features.

http://app.pan.pl/SOM/app61-Scarponi_etal_SOM/SOM_2.xlsx

SOM 3. Descriptive statistics

http://app.pan.pl/SOM/app61-Scarponi_etal_SOM/SOM_3.xlsx

References

Figure 1. Photographs of the investigated outcrops: Varovtsi (A), Horodok (B), and Velyka Levada (C).



Figure 2. Visual depiction of the shell terminology here employed and shell characters measured on the selected specimens. Quantitative assessment of shell features follows a previously established format (e.g., Scarponi et al. 2011, Scarponi et al. 2014). Here, with respect to the previous format, the number of protoconch whorls are counted differently, that is after Verduin (1977); see bottom-right figure. Abbreviations: AL, aperture length; BWL, last whorl length; W, max. width; PW, protoconch width; SL, shell length; wh, whorl.

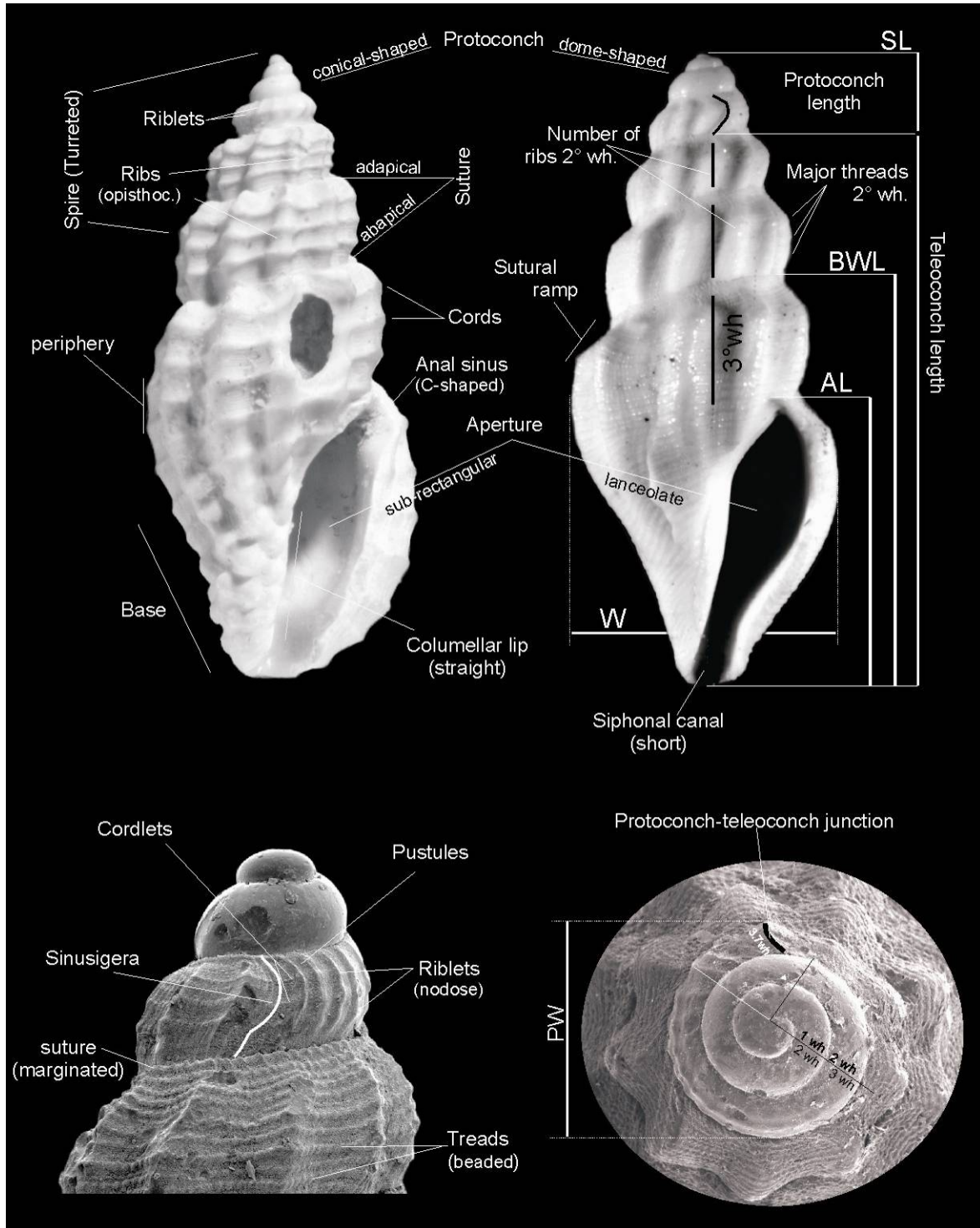
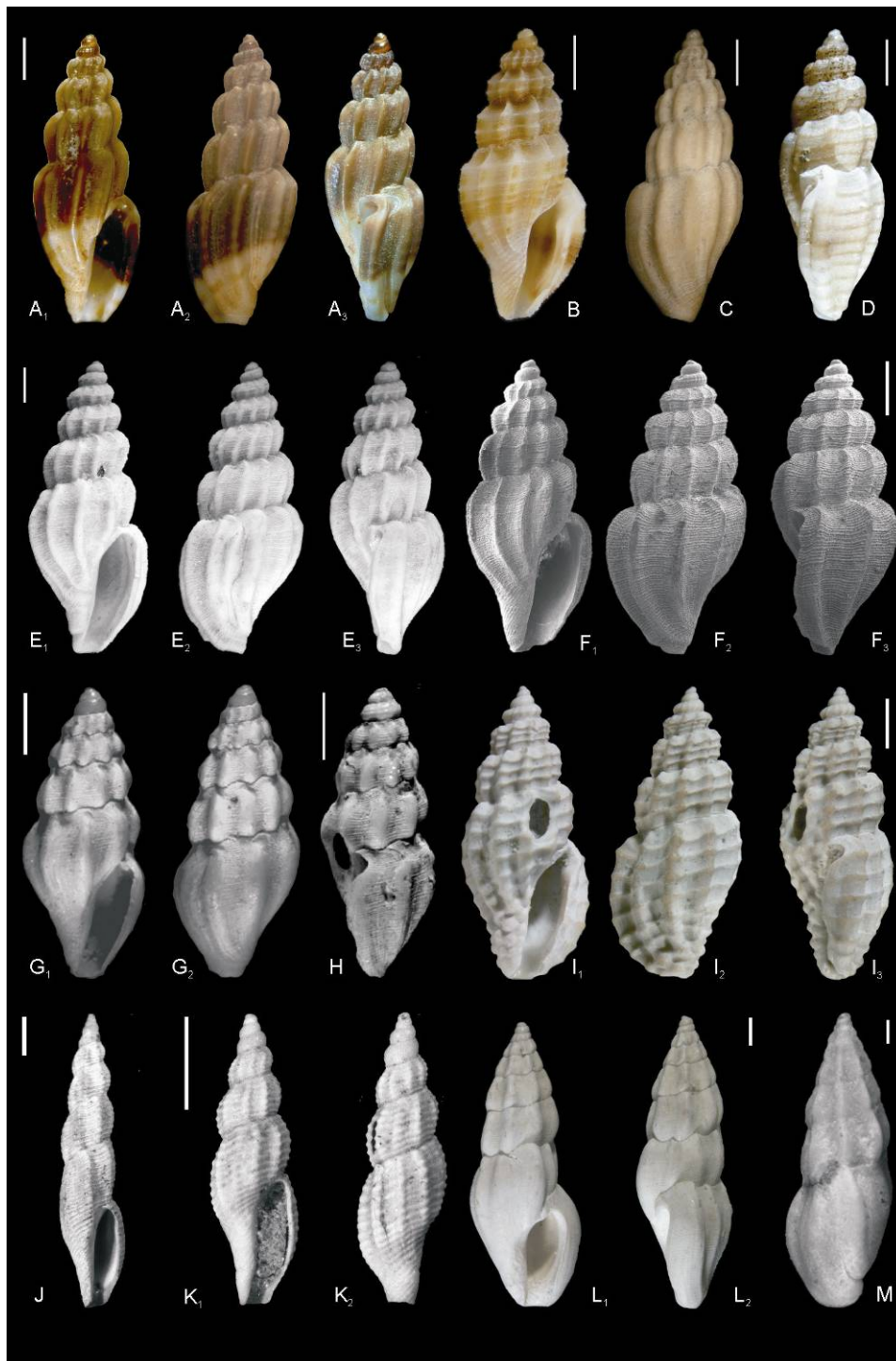


Figure 3. Photomicrographs of shell features of conoidean gastropods from early Serravallian of western Ukraine. **A.** *Mangelia angulicosta* sp. nov., MGGC 24506/11, **B.** *M. larga* sp. nov., MGGC 24508/10. **C.** *M. pseudorugulosa* sp. nov., MGGC 24510/3. **D.** *M. odovychenae* sp. nov., MGGC 24512/6. **E.** *Bela varovtsiana* sp. nov., MGGC 24517/10. **F.** *Bela?* *robusta* sp. nov., MGGC 24519/1. **G.** *Pyrgocythara turrspiralata* sp. nov., MGGC 24515/1. **H.** *Raphitoma* cf. *R. ringicula* (Boettger, 1902), MGGC 24522/1. **I.** *Andonia* sp. aff. *A. transsylvanica* (Hoernes and Auinger, 1890), MGGC 24523/3. **J.** *Teretia* cf. *T. turritelloides* (Bellardi, 1847), MGGC 24524/3. **K.** *Haedropleura* sp. aff. *H. septangularis* (Montagu, 1803), MGGC 24520/11. Views: A₁–K₁, apertural; A₂–K₂, dorsal; A₃–K₃, lateral. Scale bars 1 mm. Specimen numbers as in SOM 2.



Figure 4. Photomicrographs and scanning electron microscope images of shell features of relevant taxa. **A.** *Mangelia costata* (Pennant, 1777), MGGC Med-collection/1. **B–D.** *M. unifasciata* (Deshayes, 1835). B. MGGC Med-collection/15. C. MGGC Med-collection/11. D. MGGC Med-collection/2. **E–F.** Morphotype 12. E. MGGC 24521/7. F. MGGC 24521/15. **G–H.** *Bela pseudoappeliusi* Naldi, Della Bella, and Scarponi, 2013. G. MGGC 23475/5. H. MGGC 23478/8. **I.** *Pyrgocythara rugosissima* (Seguenza, 1875), MGGC Med-collection/2. **J.** *Andonia transsylvanica* (Hoernes and Auinger, 1890), NHMW 1867/0019/0172, lectotype. **K.** *Andonia* sp., NHMW 1867/0019/0171, specimen A. **L–M.** *Haedropleura septangularis* (Montagu, 1803). L. MGGC 23478/4. M. MGGC/ 12. In aperture (A₁, B, E₁–G₁, I₁, J, K₁, L₁), dorsal (A₂, C, E₂–G₂, I₂, K₂, M), and lateral (A₃, D, E₃, F₃, H, I₃, L₂) views. Scale bars 1 mm. Specimen numbers in SOM 2.



References

- Scarponi, D., Della Bella, G., and Ceregato, A. 2011. The genus *Haedropleura* (Neogastropoda, Toxoglossa-Conoidea) in the Plio-Quaternary of the Mediterranean basin. *Zootaxa* 2796: 37–55.
- Scarponi, D., Landau, B., Janssen, R., Mongerntoth, H., and Della Bella, G. 2014. Lectotype designation for *Murex nebula* Montagu 1803 (Mangeliidae) and its implications for *Bela* Leach in Gray 1847. *Zootaxa* 3884: 45–54.
- Verduin, A. 1977. On a remarkable dimorphism of the apices of sympatric closely-related marine gastropod species. *Basteria* 41: 91–95.