

Pironaea buseri n. sp. from olistostromal breccia of Paleocene flysch by Anhovo

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Abstract

A new species, *Pironaea buseri*, found in chaotic breccia in Paleocene flysch beds in the wider region of the Soča valley, is ascribed to the genus *Pironaea* Meneghini. The large L-S distance and equal L-S and E-S spacings distinguish the new species from any known pironaea species. The species was found with *Vaccinites giordani* (Pirona) and *Hippuritella cornucopiae* (Defrance).

Introduction

In the chaotic limestone breccia of the Podbrdo cyclotheme within the Paleocene flysch Jože Fekonja years ago found in the Rodež quarry at Anhovo (Fig. 1) a well preserved sample of sorted out incomplete right valve of a pironaea that was stored by Miklavž Fajgelj in the collection of rocks from the quarry. Shortly afterwards Dr. Stanko Buser found in a similar chaotic breccia in flysch not far from the pironaea find on the crest between the quarries Lastivnica and Deskle the rudists *Vaccinites giordani* (Pirona) and *Hippuritella cornucopiae* (Defrance). The mentioned rudist fauna was ceded to me by Stanko Buser for paleontologic examination for which I am very grateful to him.

The rudists were redeposited during the forming of Paleocene flysch as isolated specimens into the flysch basin from the southerly lying Dinaric carbonate platform. Owing to their position within the impermeable flysch marls, the isolated rudists were not lithified in the chaotic breccia nor firmly glued to its limestone fragments, and were therefore well suited for palaeontologic study. It is interesting to note that previously nowhere in Slovenia pironaeas and the species *Vaccinites giordani* were found in primary position in the Upper Cretaceous limestone, but only redeposited in younger flysch beds. This permits the supposition that these rudist species were associated with a narrow living environment on the northern rim of the Dinaric carbonate platform that was redeposited into the flysch basin during the time of its disintegration (Buser et al., 1988; Buser et al., in press).

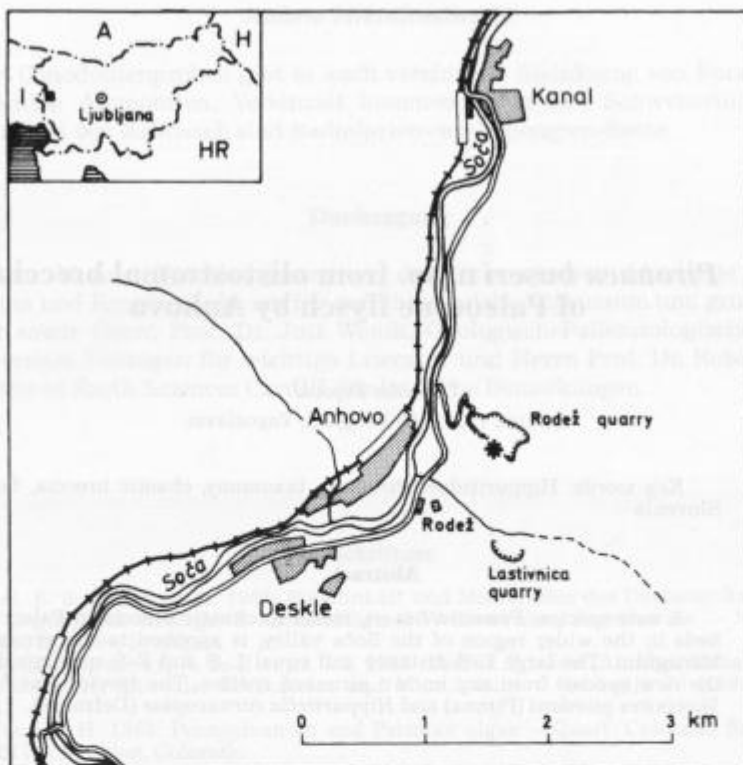


Fig. 1. Location map of *Pironaea buseri* n. sp.

Owing to the extremely well preserved internal characteristics, and owing to the fact that the pironaea found in Anhovo in the Soča valley differs from all pironaeas found so far, the fossil was attributed to the new species *Pironaea buseri*.

Systematic palaeontology

Hippuritidae Gray, 1848

Pironaea Meneghini, 1868

Pironaea buseri n. sp.

Pl. 1, Fig. 1

Derivation of name: The species is dedicated to Professor Stanko Buser, University in Ljubljana.

Holotype: Transverse section of the right valve shown in Pl. 1, Fig. 1, sample no 158, author's collection of rudists, Belgrade.

Type locality and stratigraphic position: The quarry of Rodež near Anhovo; redeposited in Paleocene flysch.

Material studied: Only one incomplete specimen of the right valve.

Diagnosis: Right valve externally ribbed longitudinally, ribs separated by a narrow furrow. Outer shell layer thin. Ligamental ridge and pillars radially positioned to each other. Ligamental ridge and the second pillar almost equal in length. L-E distance takes approximately one-third of valve circumference; L-S and S-E distance equal. Secondary folds of the first cycle well developed and narrower at base; secondary folds of the second cycle distinctly marked, nonuniform in shape.

Description: The found fragment of a right valve is 5 cm long; its anterior-posterior and dorsal-ventral diameters are 10.5 cm and 11 cm, respectively. The part of the right valve to which the fragment belonged is impossible to identify, but seems to be the central part. It shows externally large longitudinal ribs 1 cm wide, separated by narrow furrows equivalent to internal folds. Each rib shows two or three secondary ribs. Plicated growth lines are distinct. Internal features are not distinguishable in the three successive transverse sections, i.e. ontogenetic changes are not detectable.

The outer shell layer is relatively thin (about 3 mm) in relation to the valve size. Ligamental ridge is long, wide at the top and narrow at base and slightly bent away from the first pillar. The first pillar is droplike, narrow at base like a stem. The second pillar is longer than the first pillar and insignificantly longer than the ligamental ridge, almost uniform in thickness through the length, radially positioned and very slightly curved at top to the first pillar. It clearly shows facing sheets of the outer shell layer. L-E distance is large, greater than in any known *Pironaea* species; it takes almost a third of the valve circumference. L-S and S-E distances are equal. Secondary folds of the first cycle, 11 in number, are well developed and equally long, widening distally and narrow at base, they look like drops. They distinctly show the facing line of two outer shell layer sheets. Secondary folds of the second cycle are well marked, 12 in number, unequal in size, mostly half shorter than those of the first cycle. They also show the facing line of the outer shell layer sheets. Three secondary folds between ligamental ridge and the first pillar, and three between the first and the second pillars, are arranged so that the first cycle fold is in the middle and a secondary fold of the second cycle on its either side.

Remarks: The large L-E distance and equal L-S and E-S spacings, and the shapes of pillars and ligamental ridge, distinguish sufficiently *Pironaea buseri* n. sp. from any known *Pironaea* species. The new species resembles *Pironaea machnitschi* Wiontzek (Wiontzek, 1933, p. 10, Fig. 1) in having larger siphonal zone, or the L-S spacing, and in certain similarities of shape and position of E and S pillars and the ligamental ridge. However, L-S distance in the latter species is half that of S-E, whereas L-S and S-E distances are equal in the new species. Also, the shape and number of secondary folds of the first and second cycles clearly differ in the two species. Secondary folds of the first cycle are forking in the proximal end in *Pironaea machnitschi*, and are simple in the new species. Besides, the configuration of secondary folds is also different: it is regular in *Pironaea buseri*, i.e. one fold of the first cycle between two folds of the secondary cycle, and in *Pironaea machnitschi* two folds of the first cycle are next to each other.

In the shape of ligamental ridge, and in the shape but not the number of secondary folds of the first and second cycles, the new species has some resemblance to the species *Pironaea fruscagorensis* Milovanović, Sladić, Grubić. However, the L-E distance in *P. fruscagorensis* is even smaller than that of L-S or S-E in the new species; moreover, secondary folds are lacking in the siphonal zone.

If the moniliform nature of folds in *Barrettia*, and not only this genus because it

was also noted in some pironaeas (*Pironaea milovanovici* Kühn, *P. postdalmatinica* Pamouktchiev, *P. milovanovici quatretondaensis* Philip), was a secondary phenomenon, as I suggested as a possibility (Pejović, 1988; Pejović, in press) and confirmed on some caprinids (Pejović, 1972, p. 367-368, Figs. a-d), the new species would be also comparable with *Barrettia monilifera* Woodward from Flor de Alba Limestone, Puertorico (Van Dömmelen, 1971, p. 113, Pl. X, Fig. 1). The L-S distance in this specimen is almost identical with that of the new species *Pironaea buseri*. Also, the number and distribution of secondary folds between L and S, and S and E, which are not even moniliform, neither the first and second pillars are identical with respective folds of the new species.

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Plate 1

1 *Pironaea buseri* n. sp., Rodež by Anhovo
Holotype, transverse section of right valve, sample no 158, natural size

