

## Gastropod succession across the Early-Middle Frasnian transition in the Holy Cross Mountains, southern Poland


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Gastropod response to a marked carbon isotopic geochemical anomaly across the Early-Middle Frasnian transition (*Palmatolepis transitans*-*Palmatolepis punctata* conodont zones) has been analysed along the southern Laurussian shelf, mainly within the Dyminy reef in the Holy Cross Mountains. Gastropods are represented by three reefal associations (*Kowalatrochus sanctacrucensis*, *Euryzone kielcensis*, and *Grabinopsis guerichi* associations), and an impoverished open-shelf *Straparollus laevis* assemblage. The most severe diversity crisis is connected to the disappearance of local low-energy muddy habitats, as a result of a transgressive pulse (Middlesex Event) and benthic habitat changes tied to strongly fluctuating carbon cycling; this has been observed at the highly diverse Kadzielnia-type assemblage. Fifteen taxa have been recognised in this distinctive Early Frasnian mud-mound association, including six (probably endemics), which are unknown from the Middle Frasnian. The disappearance of three relict Givetian species (*Euryzone delphinuloides*, *Straparollus laevis*, and *Goniasma? zarecznyi*) is also recorded. Other species probably migrated into the shallower water part of Dyminy reef and persisted in the Middle and Late Frasnian. The Middlesex Event and the earlier major biogeochemical perturbation seem to have less serious effects for evolution of gastropods in the Polish-Moravian part of the Laurussia shelf than the catastrophic Frasnian-Famennian extinction. Two new taxa are described: *Frydiella kaimi* gen. et sp. nov. (Eotomariidae) and *Heidelbergeria czarnieckii* gen. et sp. nov. (Elasmonematidae).

**Key words:** Gastropoda, Eotomariidae, Elasmonematidae, bioevents, Frasnian, Devonian, Poland.

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