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Microhabitat complexity – an example from Middle Devonian Bryozoan-rich sediments

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West of the river Rhine, the Eifel area (Eifel synclines) is the dominating structural unit interpreted as a N-S trending axial depression of the Rheinisches Schiefergebirge. Siliciclastic sediments were delivered from the north during the Early Devonian and early Middle Devonian (Eifelian) but diminished during Givetian times when shallow subtropical carbonates were established over much of the region.

The study area lies within the Blankenheim syncline, between the villages of Blankenheim and Blankenheimersdorf and comprises shallow shelf mixed carbonate and siliciclastic facies of Middle Devonian age (Eifelian) accumulated on the southern margin of the former Avalonia microcontinent. The outcrop exposes deposits from the top of the Junkerberg Formation (Grauberg sub-formation, Nims, *Latistriatus* and Eisen members) and the transition to the Freilingen Formation (Giesdorf Member) which can be assigned to the *Polygnathus kockelianus/ensensis* conodont biozone. This section exhibits a rather diverse fauna, dominated by bryozoans, brachiopods, corals and other calcifying taxa such as calcimicrobes. Sedimentation rates were quite low as indicated by the abundant occurrence of suspension-feeding organisms and microfacies analysis. According to Standard Microfacies Types (SMF) the carbonates represent wackestones and floatstones and can be assigned to SMF 8 (Facies Zone 7).

A huge number of calcifying taxa such as *Girvanella* occur in some layers, particularly at the transition between the Freilingen Formation and the Junkerberg Formation. Other encrusting/calcifying organisms are present in various layers suggesting deposition during supersaturation of CaCO₃ minerals in a calcite sea in a low energy, subtidal environment. The studied bryozoan fauna is very diverse throughout the entire section, erect branched colonies are dominating. Five new taxa were described.

The interesting section attributed to the base of the *otomari* event interval displays an overall transgressive trend in a shallow water environment. One level – the transition between the Freilingen and Junkerberg Formations – coincides with the so-called *ostiolatus* event. Complex fossil communities in some horizons suggest excellent living conditions during deposition correlating with the global rise in sea-level at this time.