ISOS-14 Field Guide
The Ordovician of Estonia

Edited by Olle Hints and Ursula Toom

14th International Symposium on the Ordovician System, Estonia, July 19-21, 2023
Pre-conference Field Excursion: The Ordovician of Estonia, July 15-18, 2023

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Stop 2: Uuga cliff, Pakri Peninsula

Olle Hints

Location: Latitude 59.36138°N, longitude 24.03941°E; Harju County, NW Estonia.
Stratigraphy: From Tremadocian-Floian to Darriwilian, Hunneberg to Uhaku regional stages.
Status: Cliff is under nature protection, no hammering.
More information: https://geoloogia.info/en/locality/13545

The Uuga cliff is located close to the Paldiski Northern Port, where the cliff gradually emerges and gains height toward the north. It is possible to walk along the coast to the Pakerort cliff (Stop 1) and observe the gentle southwards dip of the layers (due to that, successively older rocks get exposed northwards). At the Uuga cliff, the upper part of the Leetse Formation and the oldest carbonate rocks of the Toila, Pakri, Kandle, Väo and Kõrgekallas formations are accessible. These are characterised in detail above (Stop 1).

The Uuga cliff succession has been analysed for microfossils (Fig. 2.4; Tammekänd et al. 2010; Hints et al. 2012), geochemistry, magnetic properties, as well as sedimentology (Põldsaar and Ainsaar 2014). A prominent hardground at the base of the Volkhov Regional Stage, coinciding with the base of the Dapingian, can be observed within the glauconite-rich limestones of the Toila Formation (Fig. 2.2).

The Pakri Formation, Kunda Regional Stage, lower Darriwilian, is characterised by sandy limestones to calcareous sandstones with soft-sediment deformations (Fig. 2.3).

Fig. 2.1. Succession of Tremadocian-Floian glauconitic sandstone (Leetse Formation) and Dapingian-Darriwilian carbonate rocks at the Uuga Cliff near the Northern Port of Paldiski. Photo: Olle Hints, 2020.

Fig. 2.2. A characteristic hardground ("Püstakkiht") at the base of the Volkhov Regional Stage (coinciding with the base of the Dapingian). The same surface with *Gastrochaenolites* borings can be traced from NW Russia to Öland Island, Sweden. Left – outcrop photo, right – polished slab GIT 362-538.

Fig. 2.3. Soft-sediment deformations (load casts and flame structures, Põldsaar & Ainsaar 2014) in the Pakri Formation, Kunda Regional Stage. Photo: Gennadi Baranov, 2011.

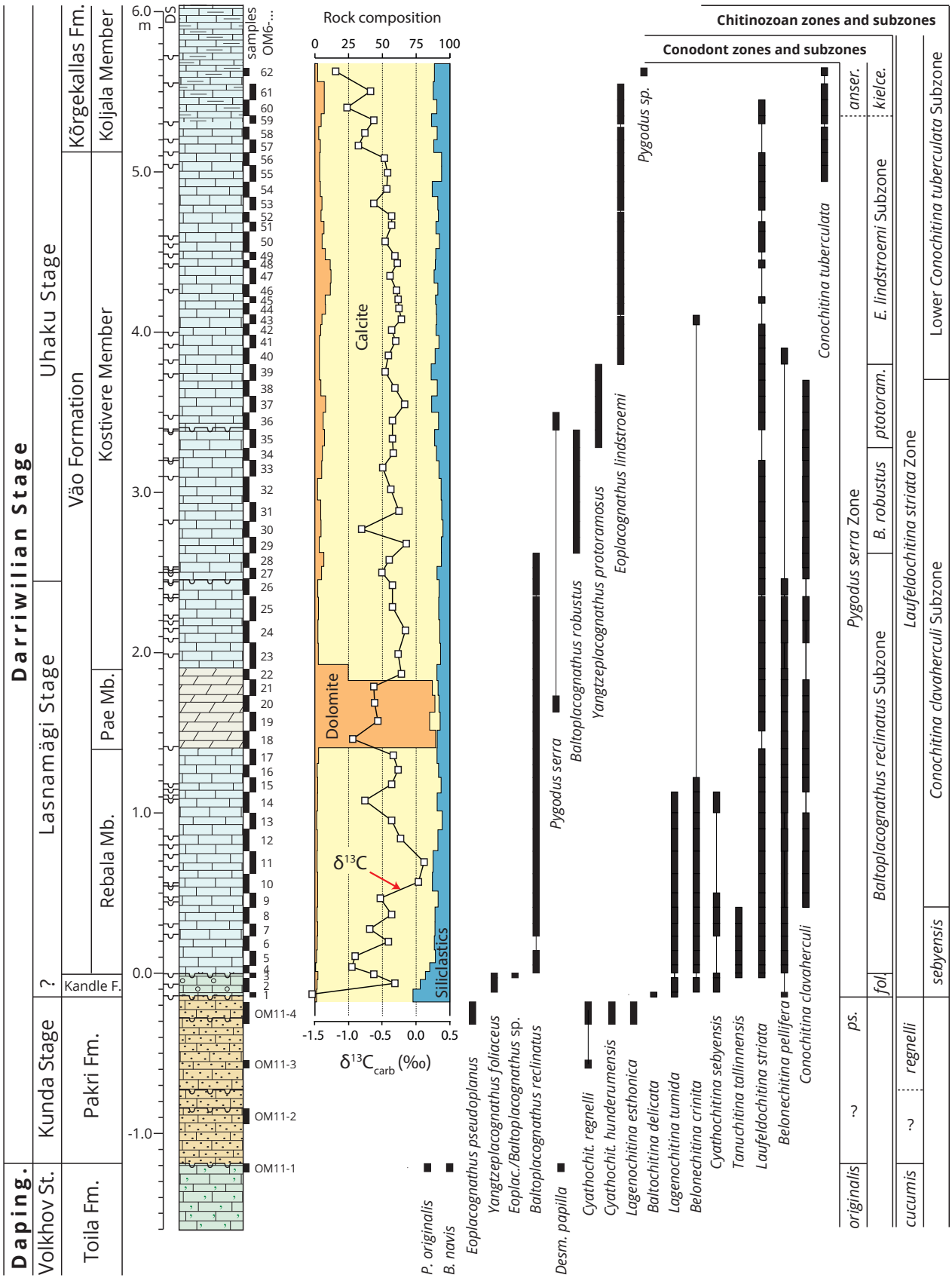

Fig. 2.4. Distribution of key conodonts and chitinozoans in the Uuga Cliff (from Hints et al. 2012).