The larger foraminifera of the K-Pg transition
in Jabal Ja'alan (Oman Mountains)

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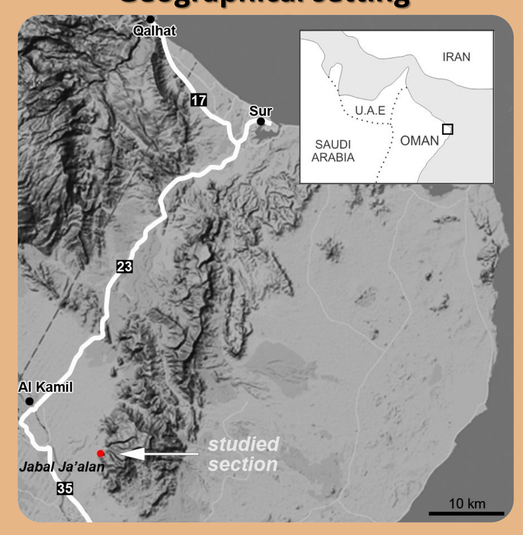
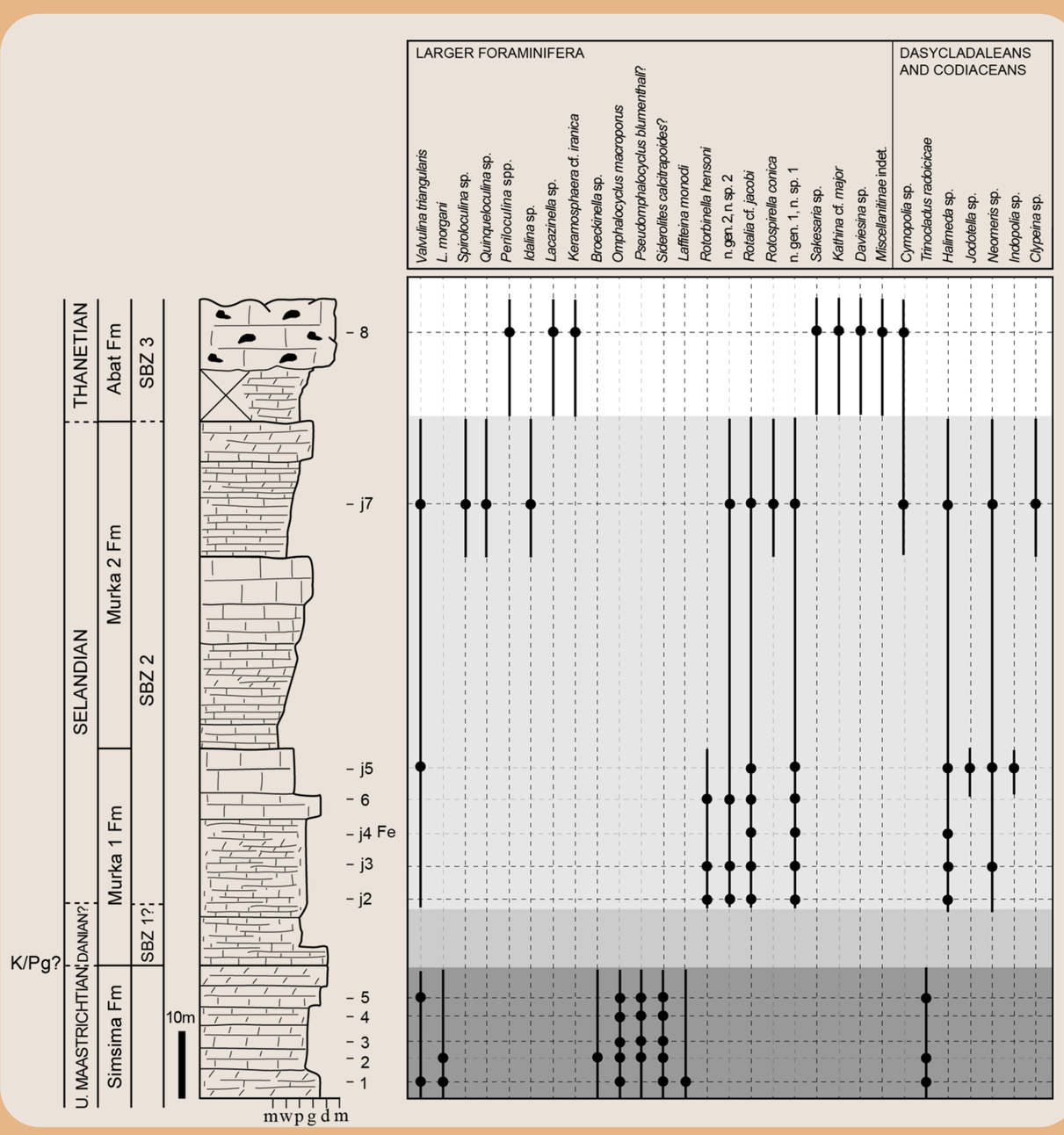
Abstract. An outstanding site in the western flank of Jabal Ja'alan (Oman Mountains) has revealed a new and exceptional succession across the K-Pg boundary. The stratigraphic record shows the palaeoenviromental and biotic changes occurred in carbonate platform facies, representing a good chance to study the evolution of the benthic communities during that critical period. Among the biotic communities that can be found in the explored interval, the current research focused on the study and characterization of the larger foraminifera assemblage found in the Murka Formation, which is a lithostratigraphic unit that covers the K-Pg transition. The Murka Fm. lain over the Simsima Formation, of Maastrichtian age, and is overlain by the Abat Formation, of middle to late Paleocene age.

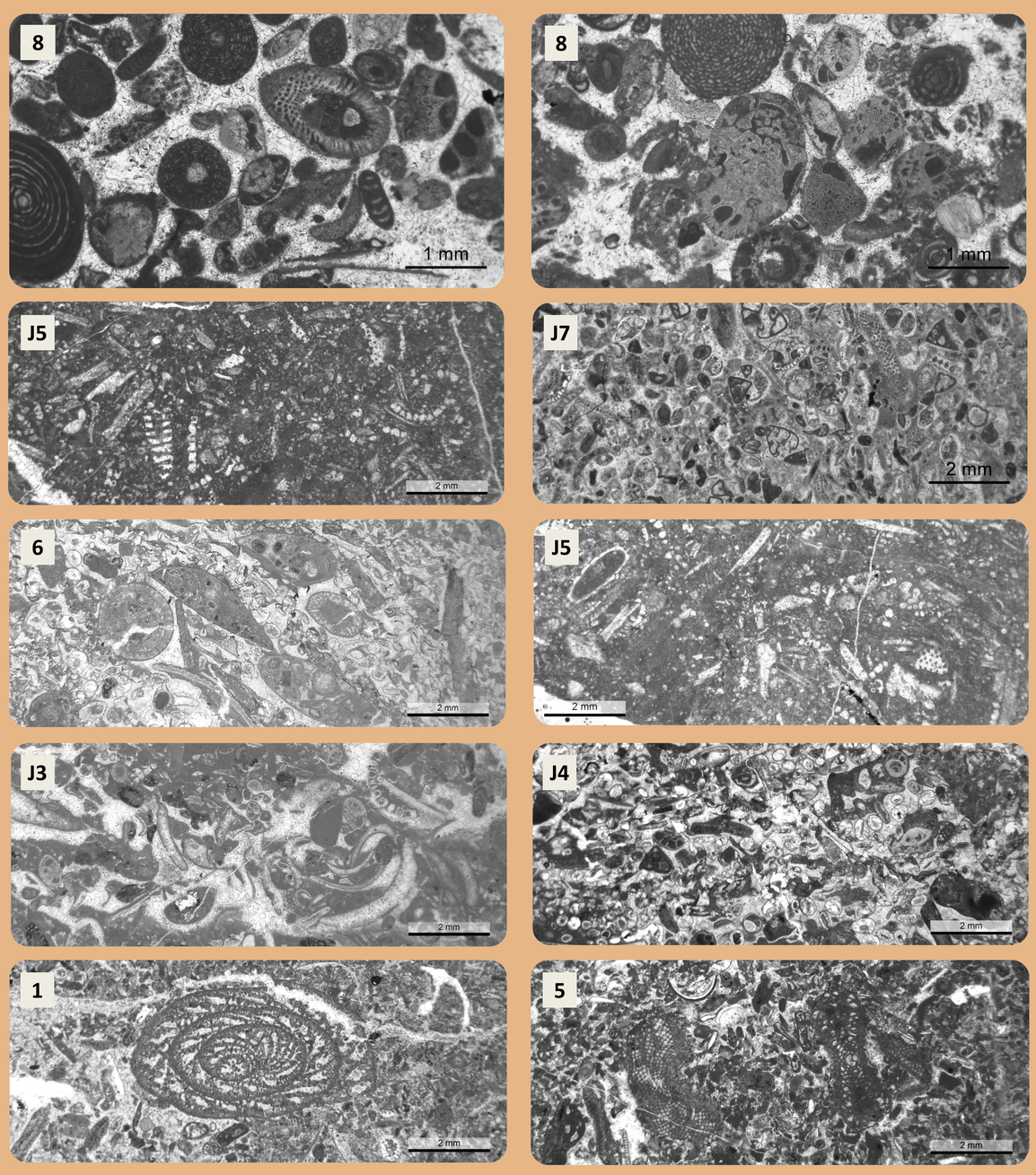
The results of our research have revealed very interesting new data on the taxonomic composition of these foraminifer assemblages. The assemblage belonging to the Simsima Formation is mainly composed of *Hellenocyclina beotica*, *Kathina* sp., *Laffiteina* sp., *Loftusia elongata*, *L. morgani*, *Omphalocyclus macroporus*, *Orbitoides gensacicus*, *Pseudomphalocyclus blumenthali*?, *Rotospirella*? sp., *Siderolites calcitrapoides*? This association can also be observed in other several sections exposed in the Abat region or in the rest of the Oman Mountains. Some taxa, such as the siderolitids, are being revised in detail because a tentative analysis revealed the existence of remarkable architectural differences in respect to their western Tethyan relatives. The larger foraminifera of the Simsima Formation seem to disappear abruptly with carbonates deposited in a restricted platform environment, which constitute the Murka Formation. This unit contains a rich association of larger rotaliids composed of *Rotalia* cf. *jacobi*, *Rotospirella conica*, *Rotorbinella hensoni* and two new forms, two new genera and two new species (one of them related to the material that was used to define *Lockhartia ackbari*, which is currently considered a *nomen nudum*). These rotaliids are associated to Paleocene algae and the whole assemblage can be considered as belonging to the SBZ 2, being of latest Danian to early Selandian in age. The larger rotaliid assemblage seem to have played a crucial role during the biotic crisis of the K-Pg interval and have to be considered as decisive to understand the origin and evolution of Paleogene rotaliids in the Middle East. The rotaliid assemblage is overlain by a rich association belonging to the Abat Formation mainly composed of *Keramosphaera* cf. *iranica*, *Kathina* cf. *major* and *Periloculina* spp. and dated as middle to late Paleocene (Selandian-Thanetian).

Geographical setting



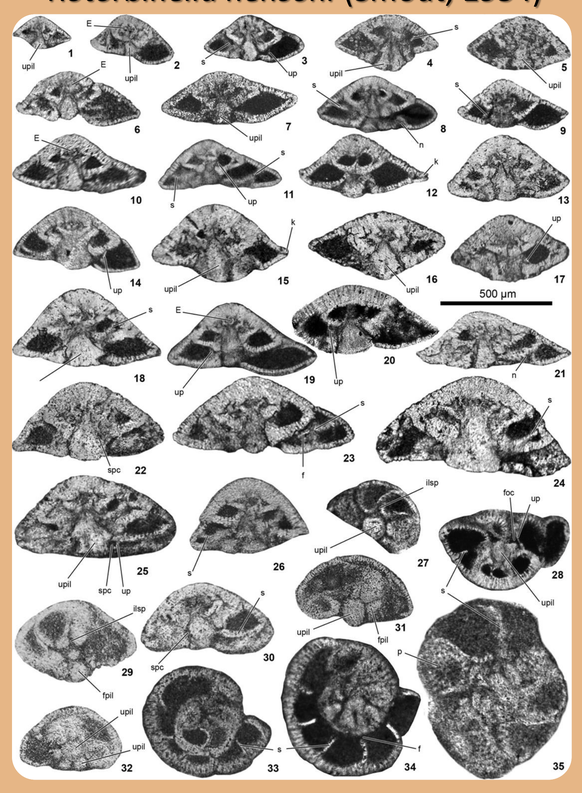
Biostratigraphy



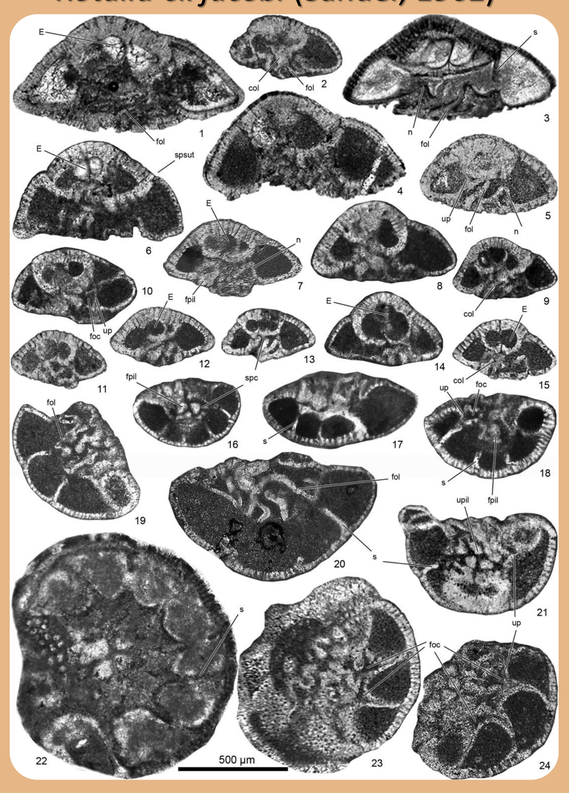


Larger Rotaliid Foraminifera – SBZ 2

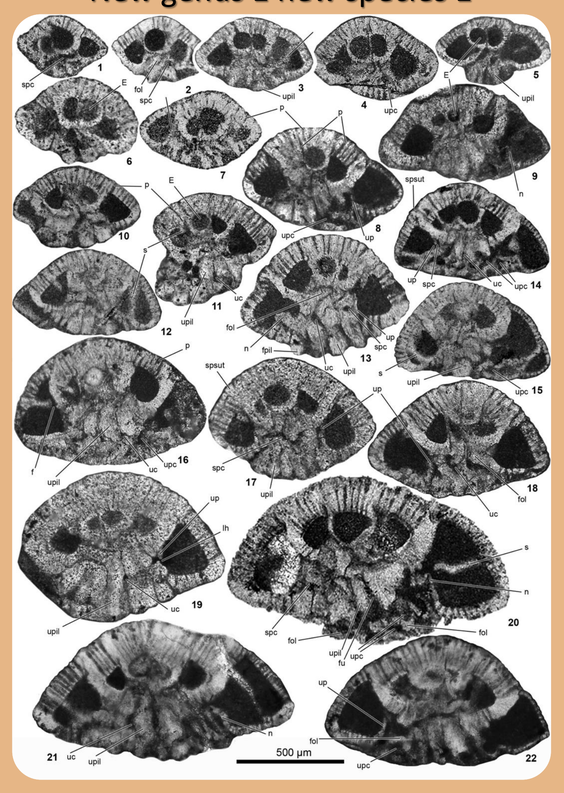
Rotorbinella hensoni (Smout, 1954)



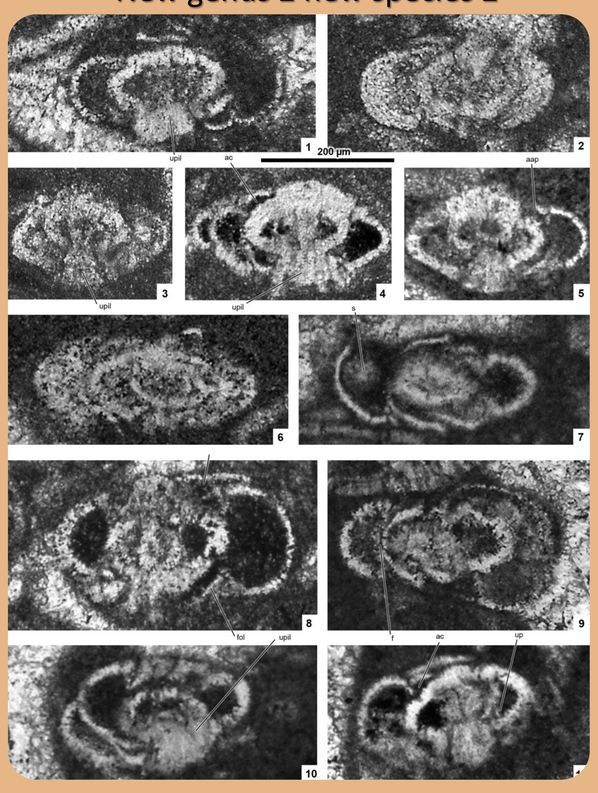
Rotalia cf. *jacobi* (Sander, 1962)



New genus 1 new species 1



New genus 2 new species 2



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