Triassic and Jurassic of Sweden - fauna and flora in a disturbed ecosystem

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The Triassic–Jurassic transition is in Sweden marked by a change from lithologies dominated by coals and dark, organic-rich mudstones in the pre-ETE successions, to light grey to whitish silt- and sandstones for the post-ETE. Facies changed from continental in the uppermost Triassic, to marginal marine in the Hettangian, locally enriched in iron ooids, in the Sinemurian. The Swedish Museum of Natural History hosts large collections of plants from these Rhaetian–Hettangian successions of southern Sweden. Detailed taxonomical investigations of these assemblages have been carried out over the last centuries contributing to its prominence by the many type specimens of foliage and cones.

Here we complement the thorough systematic work on these floras, with a major study assessing the plant diversity and abundance across the End-Triassic event from multiple localities from southern Sweden. The initial results reveal a major change, from the diverse and varied floral assemblages hosted in the Rhaetian coal-bearing deposits, to the lycophyte and fern-dominated interval within the mudstones overlying the coals. The post-extinction Jurassic floras are highly dominated by *Nilssonia*, *Sagenopteris* (Caytonia-plant) and *Podozamites*. This dramatic change in the flora, also expressed in the palynological record is most probably linked to the volcanic activity in the Atlantic volcanic province, where short term volcanic winter caused darkness and cooling leading to demise of vegetation, before the onset of high CO_2 conditions with a new flora emerging. The following transgression is traced in the marine fauna, mainly represented by bivalves in successive monospecific assemblages. Other evidence of the marine environment are the and trace fossil, shark eggs, foraminifera and in the Sinemurian, sparse ammonites.