

Shape-shifting rangeomorphs cut fractal frills to grow and grow¹

Around 571 million years ago life first made a grade-change from organisms that were only a few centimetres in size to those that grew to two metres or so high. The organisms that were able to take off in this way were the extinct rangeomorphs, softbodied frondose organisms that grew rooted in the seabed of late Precambrian times.

The rangeomorphs were members of the strange soft-bodied Ediacaran biota, which had a global distribution and predated the appearance of the more familiar shelly fossils of Cambrian times such as trilobites, brachiopods and molluscan bivalves and cephalopods.

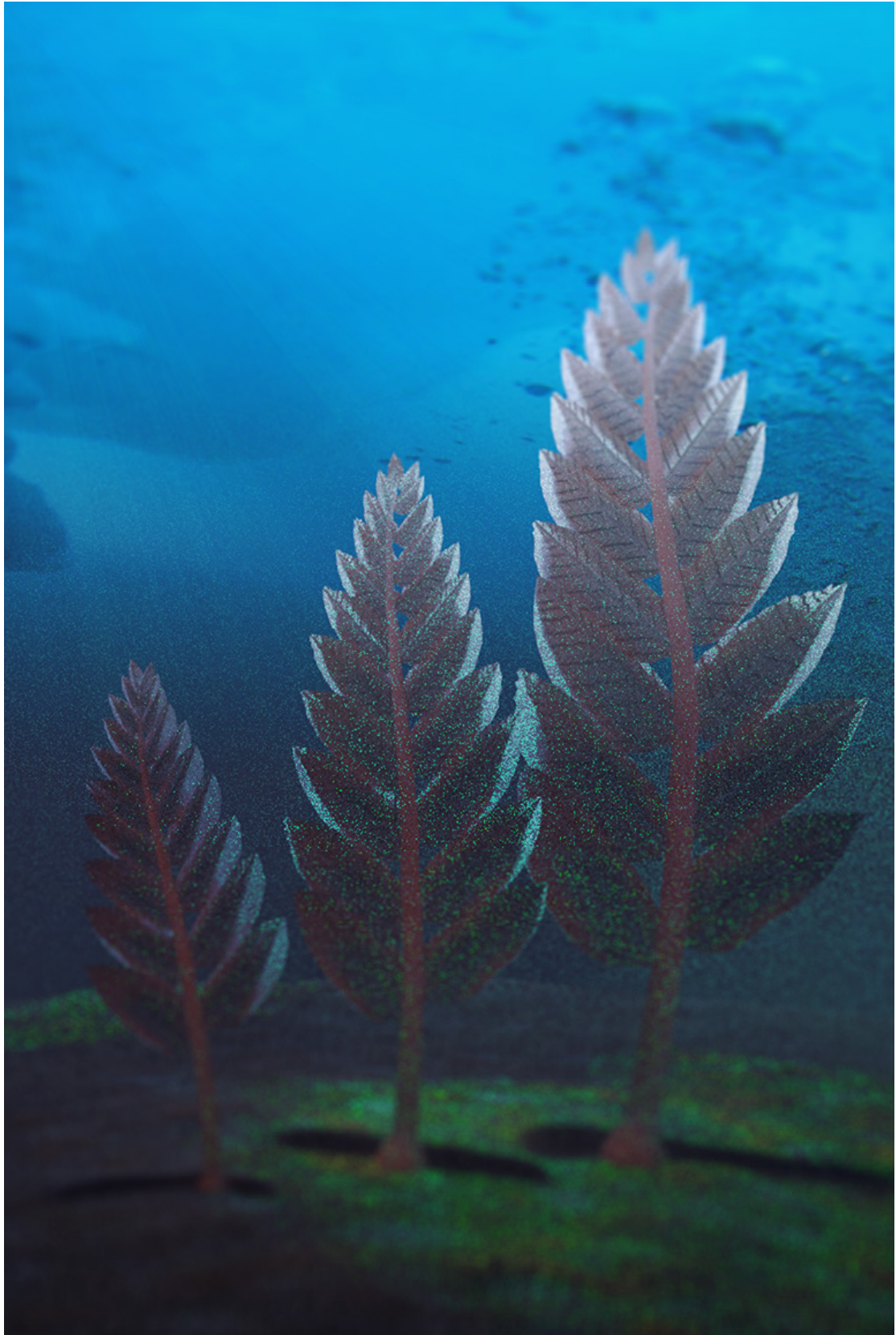
A new study by Jennifer Hoyal Cuthill and Simon Conway Morris, scientists from the Tokyo Institute of Technology and University of Cambridge, suggests that rangeomorph biology was sufficiently 'plastic' to rapidly achieve this step-change in size. Detailed measurements of the frond indicate that growth in size and shape was highly responsive to increases in ocean nutrients. Thus the sudden boom in size was probably in response to a change in ocean chemistry – perhaps an increase in oxygen.

Although fossil rangeomorphs and the other members of the Ediacaran biota have been known about for decades, their exact biological affinities are still a matter of intense research by University of Cambridge scientists.

Douglas Palmer, Sedgwick Museum

The research is published in the journal *Nature Ecology and Evolution*

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Artists impression: Dr Jennifer Hoyal Cuthill