Rare body parts find provides vital clues to identity of ancient fossil

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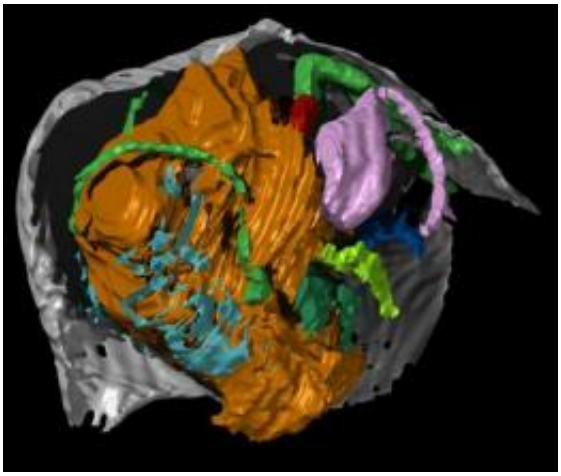


The fossil, illustrated without the shell and showing the soft-parts, including limbs and eyes. Credit: David J. Siveter, Derek E. G. Briggs, Derek J. Siveter and Mark D. Sutton

A geologist from the University of Leicester is part of a team that has uncovered an ancient water flea-like creature from 425 million years ago - only the third of its kind ever to be discovered in ancient rocks.

Professor David Siveter, of the Department of Geology at the University of Leicester worked with Professor Derek Siveter at the Oxford University Museum of Natural History, Professor Derek Briggs at Yale University USA and Dr Mark Sutton at Imperial College to make the rare discovery.

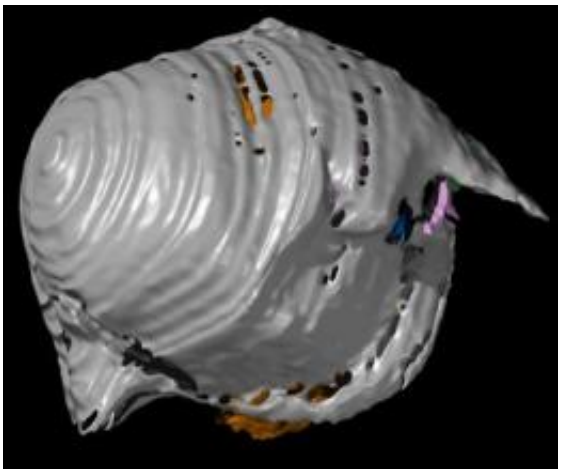
The specimen, which was found in rocks in Herefordshire, represents a new species of ostracod, and has been named *Nasunaris flata*. Like water-fleas and shrimps, ostracods belong to the group of animals called *Crustacea*. The find is important because the fossil has been found with its soft parts preserved inside the shell.

Today its descendents are common, and inhabit ponds, rivers and lakes and many parts of the seas and oceans, having first appeared on Earth about 500 million years ago.

Geologists find ostracods useful in order to help recreate past environments- the type of ostracod found in a rock sample would, for example, help to determine a picture of ancient conditions like water depth and salinity.

The study is published in the Proceedings of the Royal Society B. and in Planet Earth, the online journal of the Natural Environment Research Council.

Professor David Siveter: "Most fossil ostracod species are known only from their shells. You need exceptional conditions to preserve the soft body- there are only two other known examples of ancient fossil ostracods where the complete soft parts of the animal are preserved along with the shell."



The fossil is illustrated with its shell. Credit: David J. Siveter, Derek E. G. Briggs, Derek J. Siveter and Mark D. Sutton

Professor Siveter and colleagues were able to identify the 5mm-long fossil, its body and appendages inside the shell, including the antennae and also a set of paired eyes.

The ostracod was so well preserved that the team managed to spot the Bellonci organ, a sensory structure observed in modern species which protrudes out of the middle eye located at the front of the head. 'This is the first time the Bellonci organ is observed in fossil ostracods,' says David Siveter.

Had the soft body parts not been preserved, the scientists were likely to misidentify the fossil based on the shell record alone, claims Professor Siveter.

More information: David J. Siveter, Derek E. G. Briggs, Derek J. Siveter and Mark D. Sutton. An exceptionally preserved myodocopid ostracod from the Silurian of Herefordshire, UK. Proc. R. Soc. B published online doi: 10.1098/rspb.2009.2122