

New pterosaur species with hundreds of tiny hooked teeth discovered

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An artist's impression of *Balaenognathus maeuseri*. Credit: Megan Jacobs

An unusual new species of pterosaur has been identified, which had over 400 teeth that looked like the prongs of a nit comb.

The fossil was found in a German quarry and has been described by

paleontologists from England, Germany and Mexico.

Professor David Martill, lead author of the research, from the University of Portsmouth's School of the Environment, Geography and Geosciences, said, "The nearly complete skeleton was found in a very finely layered limestone that preserves fossils beautifully.

"The jaws of this pterosaur are really long and lined with small fine, hooked teeth, with tiny spaces between them like a nit comb. The long jaw is curved upwards like an avocet and at the end it flares out like a spoonbill. There are no teeth at the end of its mouth, but there are teeth all the way along both jaws right to the back of its smile.

"And what's even more remarkable is some of the teeth have a hook on the end, which we've never seen before in a pterosaur ever. These small hooks would have been used to catch the tiny shrimp the pterosaur likely fed on—making sure they went down its throat and weren't squeezed between the teeth."



Balaenognathus maeuseri gen. et sp. nov. (NKMB P2011-633): holotype and only reported specimen, Torleite Formation of Wattendorf (Late Jurassic). Some small gaps in the slab have been infilled with minor restoration of some bones. A portion of the distal extremity of the left metacarpal IV and part of the left anterior ilium process are known to be missing. Some other missing elements (e.g., the pteroids) may be concealed under larger bones. Credit: *PalZ* (2023). DOI: 10.1007/s12542-022-00644-4

The discovery was made accidentally while scientists were excavating a large block of limestone containing crocodile bones.

Professor Martill said, "This was a rather serendipitous find of a well-preserved skeleton with near perfect articulation, which suggests the carcass must have been at a very early stage of decay with all joints, including their ligaments, still viable. It must have been buried in sediment almost as soon as it had died."

The pterosaur belongs to a family of pterosaurs called Ctenochasmatidae, which are known from the limestone in Bavaria, Germany, where this one was also found.

Since the first pterosaur was described from there in the 18th century, hundreds of remains of these flying reptiles have been discovered, making the quarries of the Franconian Jura in Bavaria one of the richest pterosaur localities in the world.

"This pterosaur had teeth in the upper and [lower jaw](#), which are a [mirror image](#) of each other. There is one other pterosaur with more teeth—Pterodaustro from Argentina—but it has stubby teeth in its [upper jaw](#) and even longer teeth in its lower jaw, so this new specimen is very different from other ctenochasmatids," Professor Martill added.

The teeth of the new pterosaur suggest an extraordinary feeding mechanism while it waded through water. It would use its spoon-shaped beak to funnel the water and then its teeth to squeeze out excess liquid, leaving prey trapped in its mouth.

The animal likely dabbled as it waded through shallow lagoons, sucking in tiny water shrimps and copepods and then filtering them out through its [teeth](#) just like ducks and flamingos.

It has been named *Balaenognathus maeuseri*. The generic name roughly translated means whale mouth because of its filtering feeding style. The specific name is after one of the co-authors Matthias Mäuser who sadly passed away during the writing of the paper.

Professor Martill said, "Matthias was a friendly and warm-hearted colleague of a kind that can be scarcely found. In order to preserve his memory, we named the pterosaur in his honor."

The paper, "A new pterodactyloid pterosaur with a unique filter-feeding apparatus from the Late Jurassic of Germany," is published in *Paläontologische Zeitschrift* (PalZ). The specimen is currently on display in the Bamberg Natural History Museum.

More information: David M. Martill et al, A new pterodactyloid pterosaur with a unique filter-feeding apparatus from the Late Jurassic of Germany, *PalZ* (2023). [DOI: 10.1007/s12542-022-00644-4](https://doi.org/10.1007/s12542-022-00644-4)

Provided by University of Portsmouth

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