Unique skin impressions of the last European dinosaurs discovered in Barcelona
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Researchers from the Universitat Autònoma de Barcelona (UAB) in collaboration with the Institut Català de Paleontologia Miquel Crusafont (ICP), have discovered in Vallcebre (Barcelona) a fossil bearing an impression of the skin surface of a dinosaur from the Late Cretaceous. Its characteristics make it a unique discovery in Europe. The geological research was conducted in the village of Vallcebre, near Barcelona, to study the origins of rock sediments from the Late Cretaceous period (approx. 66 million years ago).

The researchers discovered the impression of skin scales left by a dinosaur that died in the mud. During that period, the area was a muddy region corresponding to the banks of a river. Over time, that muddy region where the animal's scales had imprinted was later covered with sand which, in the course of thousands of years, petrified to form sandstone, preserving the impression recently discovered by the researchers. The sand acted as a mold, and therefore, what actually can be seen on the rock is a relief of the animal's original skin.

The characteristics of the discovery are unique, given that the Late Cretaceous period corresponds to the moment shortly before dinosaurs became extinct, there are few places on Earth containing sandstone from this period, and characterising these dinosaurs is very important in order to understand how and why they disappeared. "This is the only registry of dinosaur skin from this period in all of Europe, and it corresponds to one of the most recent specimens, closer to the extinction event, in all of the world," says UAB researcher Víctor Fondevilla, main author of the study. "There are very few samples of fossilised skin registered, and the only sites with similar characteristics can be found in United States and Asia," Fondevilla says. "Other dinosaur skin fossils have been found in the Iberian Peninsula, in Portugal and Asturias, but they correspond to other more distant periods."
The shape of the scales observed on the rock shows a pattern characteristic of the skin of some dinosaurs, taking the form of a rose with a central polygonal bump surrounded by five or six more bumps. However, the scales are too large for the typical size of carnivorous dinosaurs and hadrosaurs roaming this area 66 million years ago. "The fossil probably belongs to a large herbivore sauropod, maybe a titanosaurus, since we discovered footprints from the same species very close to the rock with the skin fossil," Fondevilla says.

In fact, two skin impressions were found, one measuring approximately 20 centimetres wide, and the other slightly smaller, measuring only five centimetres wide, separated by a 1.5 metre distance and probably made by the same animal. "The fact that they are impression fossils is evidence that the animal is from the sedimentary rock period, one of the last dinosaurs to live on the planet. When bones are discovered, dating is more complicated because they could have moved from the original sediment during all these millions of years," Fondevilla states.

The finding verifies the excellent fossil registry of the Pyrenees in terms of dinosaurs living in Europe shortly before they became extinct. "The sites in Berguedà, Pallars Jussà, Alt Urgell and La Noguera, in Catalonia, have provided proof of five different groups of dinosaurs: titanosaurids, ankylosaurids, theropods, hadrosaurs and rhabdodontids," says Àngel Galobart, head of the Mesozoic research group at the ICP and director of the Museum of Conca Dellà in Isona. "The sites in the Pyrenees are very relevant from a scientific point of view, since they allow us to study the cause of their extinction in a geographic point far away from the impact of the meteorite."


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