AMERICAN MUSEUM OF NATURAL HISTORY

Media Inquiries: Kendra Snyder, Department of Communications
212-496-3419; ksnyder@amnh.org
www.amnh.org

July 2, 2012

NEWLY DISCOVERED DINOSAUR IMPLIES GREATER PREVALENCE OF FEATHERS

MEGALOSAUR FOSSIL REPRESENTS 1ST FEATHERED DINOSAUR NOT CLOSELY RELATED TO BIRDS

A new species of feathered dinosaur discovered in southern Germany is further changing the perception of how predatory dinosaurs looked. The fossil of *Sciurumimus albersdoerferi,* which lived about 150 million years ago, provides the first evidence of feathered theropod dinosaurs that are not closely related to birds. The fossil is described in a paper published in the *Proceedings of the National Academy of Sciences* today.

"This is a surprising find from the cradle of feathered dinosaur work, the very formation where the first feathered dinosaur *Archaeopteryx* was collected over 150 years ago," said Mark Norell, chair of the Division of Palaeontology at the American Museum of Natural History and an author on the new paper along with researchers from Bayerische Staatssammlung für Paläontologie und Geologie and the Ludwig Maximilians University.

Theropods are bipedal, mostly carnivorous dinosaurs. In recent years, scientists have discovered that many extinct theropods had feathers. But this feathering has only been found in theropods that are classified as coelurosaurs, a diverse group including animals like *T. rex* and birds. *Sciurumimus*—identified as a megalosaur, *not* a coelurosaur— is the first exception to this rule. The new species also sits deep within the evolutionary tree of theropods, much more so than coelurosaurs, meaning that the species that stem from *Sciurumimus* are likely to have similar characteristics.

"All of the feathered predatory dinosaurs known so far represent close relatives of birds," said palaeontologist Oliver Rauhut, of the Bayerische Staatssammlung für Paläontologie und Geologie. "*Sciurumimus* is much more basal within the dinosaur family tree and thus indicates that all predatory dinosaurs had feathers."

The fossil, which is of a baby *Sciurumimus*, was found in the limestones of northern Bavaria and preserves remains of a filamentous plumage, indicating that the whole body was covered with feathers. The genus name of *Sciurumimus albersdoerferi* refers to the scientific name of the tree squirrels, *Sciurus*, and means "squirrel-mimic"—referring to the especially bushy tail of the animal. The species name honours the private collector who made the specimen available for scientific study.

"Under ultraviolet light, remains of the skin and feathers show up as luminous patches around the skeleton," said co-author Helmut Tischlinger, from the Jura Museum Eichstatt.

Sciurumimus is not only remarkable for its feathers. The skeleton, which represents the most complete predatory dinosaur ever found in Europe, allows a rare glimpse at a young dinosaur. Apart from other known juvenile features, such as large eyes, the new find also confirmed other hypotheses.

"It has been suggested for some time that the lifestyle of predatory dinosaurs changed considerably during their growth," Rauhut said. "*Sciurumimus* shows a remarkable difference to adult megalosaurs in the dentition, which clearly indicates that it had a different diet."

Adult megalosaurs reached about 20 feet in length and often weighed more than a ton. They were active predators, which probably also hunted other large dinosaurs. The juvenile specimen of *Sciurumimus*, which was only about 28 inches in length, probably hunted insects and other small prey, as evidenced by the slender, pointed teeth in the tip of the jaws.

"Everything we find these days shows just how deep in the family tree many characteristics of modern birds go, and just how bird-like these animals were," Norell said. "At this point it will surprise no one if feather like structures were present in the ancestors of all dinosaurs."

The study was financed by the Volkswagen Foundation and the American Museum of Natural History.

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The American Museum of Natural History, founded in 1869, is one of the world's preeminent scientific, educational, and cultural institutions. The Museum encompasses 46 permanent exhibition halls, including the Rose Center for Earth and Space and the Hayden Planetarium, as well as galleries for temporary exhibitions. Five active research divisions and three

cross-disciplinary centers support 200 scientists, whose work draws on a world-class permanent collection of more than 32 million specimens and artifacts, including specialized collections for frozen tissue and genomic and astrophysical data, as well as one of the largest natural history libraries in the Western Hemisphere. Through its Richard Gilder Graduate School, it is the first American museum authorized to grant the Ph.D. degree. In 2012, the Museum will begin offering a pilot Master of Arts in Teaching with a specialization in earth science. Approximately 5 million visitors from around the world came to the Museum last year, and its exhibitions and Space Shows can be seen in venues on five continents. The Museum's website and collection of apps for mobile devices extend its collections, exhibitions, and educational programs to millions more beyond its walls. Visit amnh.org for more information.

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