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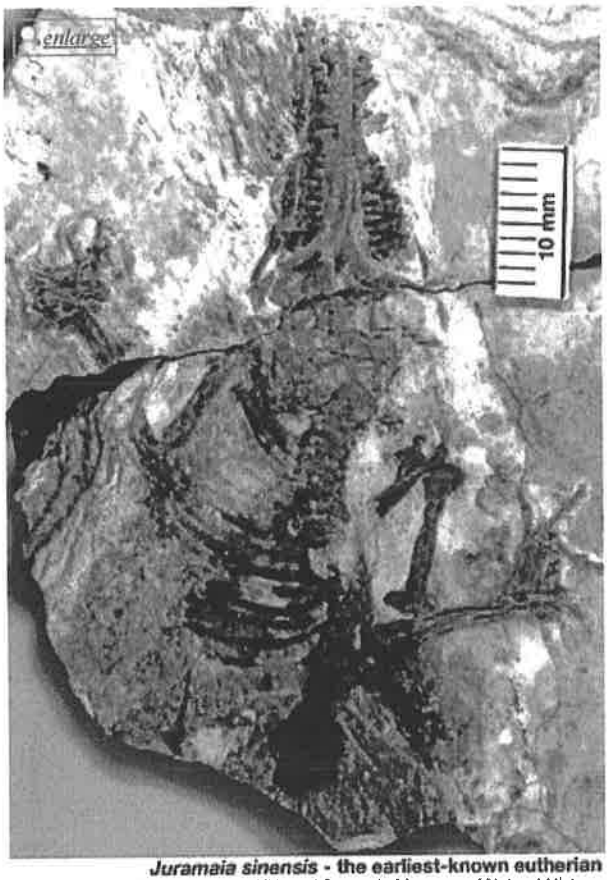
Discovery of a 160-Million-Year-Old Fossil Represents a New Milestone in Early Mammal Evolution

ScienceDaily (Aug. 24, 2011) — A remarkably well-preserved fossil discovered in northeast China provides new information about the earliest ancestors of most of today's mammal species -- the placental mammals. According to a paper published August 25 in the journal *Nature*, this fossil represents a new milestone in mammal evolution that was reached 35 million years earlier than previously thought, filling an important gap in the fossil record and helping to calibrate modern, DNA-based methods of dating the evolution.

The paper by a team of scientists led by Carnegie Museum of Natural History paleontologist Zhe-Xi Luo describes *Juramaia sinensis*, a small shrew-like mammal that lived in China 160 million years ago during the Jurassic period. *Juramaia* is the earliest known fossil of eutherians -- the group that evolved to include all placental mammals, which provide nourishment to unborn young via a placenta. As the earliest known fossil ancestral to placental mammals, *Juramaia* provides fossil evidence of the date when eutherian mammals diverged from other mammals: metatherians (whose descendants include marsupials such as kangaroos) and monotremes (such as the platypus). As Luo explains, "*Juramaia*, from 160 million years ago, is either a great-grand-aunt, or a 'great-grandmother' of all placental mammals that are thriving today."



***Juramaia sinensis* - the earliest-known eutherian**
Photo: Dr. Zhe-Xi Luo / Carnegie Museum of Natural History

New Jurassic eutherian mammal Juramaia sinensis: The original fossil (type specimen) is preserved on a shale slab from the Jurassic Tiaojishan Formation. The fossil belongs to the Beijing Museum of Natural History (BMNH PM1143) and is being jointly studied by Chinese and American scientists. Etymology: "Jura" represents the Jurassic Period of the geological time scale; "-maia" means "mother;" sinensis means "from China." The full name means "Jurassic

The "Jurassic mother from China"

The fossil of *Juramaia sinensis* was discovered in the Liaoning Province in northeast China and examined in Beijing by Zhe-Xi Luo and his collaborators: Chong-Xi Yuan and Qiang Ji from

Reading Strategies (Before, During, and After) Directions:
For this article, you will be making predictions, summarizing what you have read, asking questions about what you read, and clarifying important points of the article.

PREDICTIONS
Everyone in the group needs to look at the article title and any headings, pictures, and/or diagrams. Think about what you already know about the topic. The person who holds the "Predictor" card is the speaker for this section. This person needs to make at least two predictions about what the article is going to be about and support the predictions with evidence from the headings, pictures, or diagrams. Everyone needs to record the predictions made by the "predictor" below. In addition, indicate if you agree or disagree with the predictions.

Prediction Made by "Predictor" **(be as specific as possible – one word is not enough)**	**Supporting Evidence**	**Do YOU agree or disagree with the prediction? Explain.**

ANNOTATIONS
Everyone needs to silently read the article. Annotate the text as you read. Use the symbols shown below.