

A new specimen of *Microraptor* (Theropoda: Dromaeosauridae) from the Lower Cretaceous of western Liaoning, China

RUI PEI¹, QUANGUO LI,² QINGJIN MENG,³ KE-QIN GAO,⁴
AND MARK A. NORELL⁵

ABSTRACT

Microraptor zhaoianus is known from several specimens collected in western Liaoning Province, China. However, several aspects of the morphology of *Microraptor* remain unknown or ambiguous due to poor preservation of the described specimens. A well-preserved new specimen of *Microraptor zhaoianus* is described in this study. This specimen preserves significant morphological details that are not present or are poorly preserved in the other *Microraptor* specimens including aspects of the skull, the rib cage, and the humerus. These new characters corroborate *Microraptor* as a member of the Dromaeosauridae as previously suggested and support the close relationship of troodontids and dromaeosaurids (Deinonychosauria). The morphology of the rib cage also suggests *Microraptor* and the early volant avialans very likely may have shared a similar mechanism to assist respiration.

INTRODUCTION

Microraptor is an important and interesting avianlike dinosaur from the Jehol Biota. It has received a lot of attention especially in regard to its possible volant activity, extensive plumage on

¹ Division of Paleontology, American Museum of Natural History.

² State Key Laboratory of Biogeology and Environmental Geology, China University of Geosciences, Beijing 100083, China.

³ Beijing Museum of Natural History, 126 Tianqiao South Street, Beijing 100050, China.

⁴ School of Earth and Space Sciences, Peking University, Beijing 100871, China.

⁵ Division of Paleontology, American Museum of Natural History.