

MORPHOLOGICAL COMPARISON OF MANDIBLES OF THE TOOTHED BIRD *HESPERORNIS* AND MOSASAURS

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ABSTRACT

Some mandibles of juvenile mosasaurs have previously been mistaken for mandibles of *Hesperornis*. Mandibles of mosasaurs are characterized by: 1) dentaries with 12 to 24 pleurodont teeth, 2) no predentary bone, 3) prearticular process extending anteriorly between the splenial and dentary, 4) dentary deepening posteriorly with no overlap with the surangular, 5) presence of a coronoid, 6) tooth replacement from posterior and medial relative to the functional tooth, 7) the glenoid for the ventral surface of the quadrate is a simple sulcus, and 8) glenoid composed of the articular and surangular. In contrast, mandibles of *Hesperornis* are characterized by: 1) dentaries with 33 thecodont teeth, 2) presence of a predentary bone, 3) surangular with a process that extends medial to the dentary, almost to the dentary's anterior end, 4) surangular and dentary overlap, with the dentary tapering posteriorly, 5) absence of a coronoid, 6) tooth replacement from directly below the functional tooth, 7) glenoid for the ventral surface of the quadrate is a complex of ridges and sulci, and 8) glenoid confined to the articular. Convergence between immature mosasaurs and *Hesperornis* was postulated in the past because of size similarity. The morphology and movement of articulations, is also similar, although not homologous. Some confusion arose previously because juvenile mosasaurs were often mistaken for species of *Hesperornis*.