Complete Fish Fossil From the Upper Cretaceous Mancos Shale near Tierra Amarilla, Rio Arriba County, New Mexico

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Other than shark’s teeth and isolated actinopterygian scales, fossil of fishes are rare in the Upper Cretaceous Mancos Shale of northwestern New Mexico. Therefore, the discovery of a nearly complete fish skeleton is a noteworthy record. This fish skeleton was collected decades ago by persons unknown and donated to the Museum of New Mexico and later transferred to the New Mexico Museum of Natural History (NMMNH). Locality data with the fossil indicate it was collected near Tierra Amarilla in Rio Arriba County from an approximately 0.25 square mile outcrop (NMMNH locality 8277). The stratigraphic interval that contained the fish fossil was mapped by Landis and Dane (1967) as the middle shale unit (Kmm) of the Mancos Shale above the Cooper Arroyo Sandstone Member (Kmc) and below the El Vado Sandstone Member (Kme). King (1974) called the unit equivalent to the middle shale unit the “lower Smoky Hill interval.” Two lithologies are apparent at the outcrop where the fish fossil was found: a darker, more indurated shale (Kme) overlies lighter, more friable shale (Kmm). The matrix of the fossil fish matches the lithology of the upper shale, and isolated fish scales are present in the lower shale. Based on King’s biostratigraphic data, we can infer that the fish fossil came from one of two zones: the upper middle Coniacian Volviceramus involutus inoceramid zone, which is equivalent to the Scaphites ventricosus ammonite zone, or the lower upper Coniacian Magadiceramus subquadratus inoceramid zone, which is equivalent to the Scaphites depressus ammonite zone.

Catalogued as NMMNH P-64787, the Mancos fish fossil is part/counterpart of a nearly complete acanthopterygian fish. It has a standard length of approximately 17.5 cm, which is approximately twice as large as an unnamed taxon of holocentroid that Stewart (1984) described from the upper Santonian Zone of Clioscaphites chouteauensis in the Smoky Hill Chalk Member of the Niobrara Chalk in Kansas. Whereas the Mancos fish has scales with ornamentation consisting of subparallel ridges perpendicular to the rear edge of the scale, the unnamed holocentroid taxon has no such scale ornamentation. The scales of the Mancos specimen are generally similar to those of Caproberyx superbus from the English Chalk. This is the first U.S. record of a Cretaceous holocentroid outside of Kansas. Both older and younger holocentroid records are known in Kansas.

References:


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