

A new species of the Cretaceous teleostean fish *Erichalcis* from Arctic Canada, with a revised diagnosis of the genus

Chelsea R. HERMUS, Mark V. H. WILSON & Andrew MACRAE

Abstract

A second species of the enigmatic fossil genus *Erichalcis*, *E. conspicua* sp. nov., is described from Late Early Cretaceous (middle Albian) beds of the Macdougall Point Member, Christopher Formation, at Dragon Mountain, Axel Heiberg Island, Nunavut, Canada. The new species differs from the type species *E. arcta* FOREY, 1975, from the Albian of the Loon River Formation, southern Northwest Territories, Canada, in the robust nature of its mid-lateral scutes and the angle of inclination of the dorsal and ventral scute processes. Its occurrence in the Albian of the high Arctic extends the geographic range of *Erichalcis* and suggests that the genus may be a useful indicator of an Albian age.

Specimens of a ventral-scuted form from the Loon River Formation, previously included within *Erichalcis arcta*, belong to a different, as yet unnamed species, probably a member of the Clupeomorpha. *Erichalcis* itself possesses mid-lateral scutes but not abdominal scutes.

A second species of teleost from the Dragon Mountain locality, with ventral scutes that are unlike those of known clupeomorphs, is briefly described in open nomenclature.

Introduction

Often, discovery and description of a new species leads to re-examination of higher categories to which it is assigned. Such is the case with *Erichalcis* FOREY, 1975, a problematic Cretaceous teleost. In 1993, Andrew MACRAE (then of the University of Calgary Department of Geology and Geophysics) and Len HILLS discovered two Cretaceous fish fossils in an outcrop on Dragon Mountain, western Axel Heiberg Island (Nunavut, Canada). One specimen represents a new species of *Erichalcis*, while the other remains unclassified due to lack of diagnostic features. Description of the new species and subsequent re-examination of the type material of *Erichalcis arcta* have shown that the genus, as originally diagnosed, is a composite of at least two separate taxa.

FOREY (1975) originally described *Erichalcis arcta* as a primitive clupeomorph based on a few skeletal synapomorphies and a series of clupeomorph-type abdominal scutes. Two specimens, the holotype and a ventral-scuted form, were later figured in GRANDE (1985) as representative of primitive clupeomorph fishes. Recently, *Erichalcis* was used as an ingroup taxon (ARRATIA 1997, 1999, 2000) to clarify phylogenetic relationships among primitive teleosts. ARRATIA found that *Erichalcis* belongs among primitive euteleosts rather than within the Clupeomorpha, and is now focusing on clarifying the systematic position of *Erichalcis*.

Classification of the new specimen from Axel Heiberg Island as *Erichalcis* is due to a series of thickened mid-lateral scales present in both *E. arcta* and the new species. These large, thick scales, or scutes, are unlike scale cover of any other known fishes. The new species is separated from the type species based on the morphology of these scutes.

Re-examination of the *Erichalcis* collection to aid in diagnosis of the new species revealed that it represents a composite of at least two genera. One group of specimens, including the holotype UALVP8606, shares many characters including the distinctive mid-lateral scutes. The other group, manifested by

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