

## A low diversity ichnofaunal assemblage at the base of Romer's Gap: Mid-Paleozoic Kennebecasis Formation, Kennebecasis Island, New Brunswick, Canada

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Recent geological mapping of the westernmost Moncton subbasin on Kennebecasis Island has uncovered a low diversity invertebrate ichnofaunal assemblage preserved from limited outcrop. The name Kennebecasis Formation has previously been employed for red beds that clearly occupy different stratigraphic positions within the Mississippian sequence of southern of New Brunswick, but is currently accepted as being stratigraphically the lowest formation in the Moncton subbasin. Fossils are rare within the Kennebecasis Formation due to the red conglomerate-dominated sedimentary rocks, but a porolepiform fish (*Holoptychius*) described by others suggests a latest Devonian age for at least part of the Kennebecasis Formation. The recently discovered invertebrate traces are the first ichnofossils described from the formation and the oldest continental ichnofossils described from the base of 'Romer's Gap'. Traces of *Protichnites*, *Diplichnites*, *Gordia*, *Hemithoidichnites*, and *Gyrophyllites* are preserved within sediments interpreted as alluvial overbank deposits and floodplain deposits from two stratigraphically distinct sites. Newly discovered limestones within the Kennebecasis Formation contain recrystallized (calcite-spar) 'tubes' that likely represent either bioturbation (?*Planolites* or ?*Chondrites*) or algal sheaths preserved within continental evaporite deposits.

New palynology samples have been analyzed from the upper fine-grained strata of the Kennebecasis Formation, and the overlying conformable grey beds previously included in the Kennebecasis Formation. Lithologically, the uppermost grey bed unit resembles the Albert Formation and contains *Lepidodendropsis* sp. stems and *Aneimites* ferns; however, this unit has also yielded spores indicative of Tournaisian Zones 3–5, not latest Devonian – earliest Mississippian age as for the type area of the Kennebecasis Formation, suggesting either a younger, late Tournaisian Sussex Group age or a cryptic geological contact (unconformity, fault contact), is present.

The trace fossil assemblage is comparable to that described from the slightly older Devonian-aged Catskill Formation of New York State and to other ichnofossil assemblages observed in the Horton Group. The seemingly unaffected continental ichnofaunal assemblages on either side of the end-Devonian extinction event may suggest that continental biodiversity did not change dramatically across the extinction boundary into Romer's Gap, further suggesting the gap may be an artifact of sampling and taphonomy.