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Behavioral Evolution in Triassic Arthropods: Ichnological Evidence from the Fundy Basin

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Abstract

This study investigates trace fossil analysis from Fundy Basin, Eastern Canada during the Late Triassic (210 Ma). Using ichnological analysis and behavioral reconstruction, we analyze fossil specimens to understand evolutionary patterns and ecological relationships. Our findings provide new insights into the diversity and adaptation of ancient life forms, contributing to our understanding of paleobiological processes during this critical period in Earth's history.

Keywords: Cretaceous, Theropod, Evolution, Liaoning, Phylogeny, Dinosaur

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1. Introduction

Trace fossils provide unique insights into ancient animal behavior and ecology, preserving evidence of activities rarely captured in the body fossil record. The Late Triassic Fundy Basin of eastern Canada contains diverse ichnofaunas that document the behavioral evolution of early arthropods during the recovery from the end-Permian mass extinction.

2. Ichnological Methods

Trace fossil assemblages were systematically documented from six stratigraphic levels. Behavioral reconstructions employed biomechanical analysis of trackway parameters, including stride length, step angle, and pace angulation. Environmental interpretations were based on sedimentological analysis and associated body fossils.