271-24 - A NEW SUITE OF LATE TRIASSIC FISH MICROFOSSILS FROM THE NORIAN STAGE (LATE TRIASSIC) IN SOUTHLAND, NEW ZEALAND AND A MORPHOMETRIC ANALYSIS OF DIETARY PREFERENCE

Wednesday, 25 September 2019
9:00 AM - 6:30 PM

- *Phoenix Convention Center - Hall AB, North Building*

Booth No. 223

Abstract

Paleoecological and predation patterns in the Late Triassic has presented many research challenges, due to differential preservation potential of many vertebrate predators and their shelly prey in shallow marine environments. Microfossils from vertebrate predators, including teeth and dermal denticles, found as biosediments among shelly macrofauna in shallow marine deposits are a potential proxy for presence and diet of shallow marine predators during the Late Triassic. New investigations into Late Triassic deposits of the South Island of New Zealand have yielded vertebrate microfossils and demand new methods in microfossil recovery and morphological interpretation. This study explores morphometric approaches in the comparison and dietary interpretation of vertebrate microfossils during a critical interval in Mesozoic predator-prey escalation.

Bulk samples collected from Southland (South Island), New Zealand, were analyzed for vertebrate microfossils. To facilitate comparison with other Late Triassic dental assemblages, teeth were initially assigned to dietary niches using a morphological character matrix for Early Mesozoic vertebrate predators based on published literature and previous work.

A suite of teeth never before described from the Triassic in New Zealand was discovered during this process, including several palate fragments containing “hockey puck”-shaped teeth, hemispherical teeth, and striated, blunt cones. Some characteristics for determining diet, such as tip angle and shape described by length/width measurements, proved inadequate for analysis of the more rounded and palate-like morphologies. Morphometric comparison using landmarks and semi-landmarks allows for greater precision and flexibility when comparing morphotypes of vertebrate microfossil teeth from New Zealand and other Late Triassic localities.

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