Ichnofossil Locality	Elevation (m)	Track Type	Meters below the Buckhorn Conglomerate	Facies	Ichnotaxa
1	1794	Natural Cast	5	Find Sand	*Grallator isp.*
2	1789	Underprint	10	Mud	*Dinehichnus isp.*
3	1789	Underprint	10	Mud	*Brontopodus isp.*
4	1786	Natural Cast	13	Mud	*Parabrontopodus isp.*
5	1777	Natural Cast	22	Mud	*Parabrontopodus isp.*
6	1776	Underprint	23	Mud	*Brontopodus isp.*
7	1774	Underprint	25	Mud	*Parabrontopodus isp.*
8	1749	Natural Mold	50	Sand	*Brontopodus isp.*

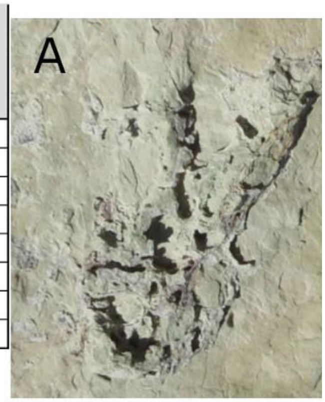

Figure 1. Data table displaying the ichnogenus, facies, trace type, and stratigraphic position of vertebrate tracks in Jurassic National Monument. A) Partial *Grallator isp*. track in sand facies; B) Underprint of ornithopod-like *Dinehichnus isp*.; C) Underprint of a sauropod-like *Brontopodus isp*. Scale bar equals 10 cm.

deposited sand overtop of the prints (Lockley et al., 1995). Alternatively, there may be a biological bias towards mud facies as sauropods may have spent much of their time walking over muddy riverside sediments supporting much of the vegetation they fed on.

While most identified traces are attributed to sauropod-like *Brontopodus isp*. and *Parabrontopodus isp*., non-sauropod traces such as *Grallator isp*. and *Dinehichnus isp*. occur at a higher stratigraphic position; no more than ten meters below the base of the Buckhorn conglomerate wedge. In contrast, nearly all the sauropod traces were more than ten meters below the contact, most occurring between 13 and 25 meters beneath this point. While preliminary and based on a small dataset, this has led to further questions regarding population dynamics approaching the end of the Jurassic as well as preservational biases.

Continued exploration into potential trends within the ichnofossil record of the Cleveland-Lloyd Dinosaur Quarry at Jurassic National Monument and the Morrison Formation in general has strong potential to provide insight into the overall understanding of the late Jurassic ecosystem of the western United States. In the vicinity of Jurassic National Monument in Utah, the stratigraphic and lithological biases associated with the known ichnogenera creates a significant amount of room for interpretation of the potential geological and paleobiological factors.

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Poster Session 3 (Saturday, June 10, 2023)

REASSESSMENT OF VERTEBRATE MICROFOSSILS FROM THE STRAIGHT CLIFFS FORMATION (TURONIAN-EARLY CAMPANIAN) OF SOUTHERN UTAH

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Vertebrate microfossils, particularly teeth, can provide key information on biodiversity, and, for taphonomic reasons, often provide information on extinct ecosystems for which no other fossil data is available. The Straight Cliffs Formation of southern Utah represents a paralic/coastal plain environment from the mid-Cretaceous period, a time of important, yet poorly understood faunal turnover. Quality skeletal material is rare in the formation, and most fossil data comes in the form of isolated teeth (Eaton et al., 1999). With the exception of a well-studied mammal fauna, most of these teeth have never been figured in the literature, nor reconsidered in the light of taxonomic advances over the last two decades.

With this in mind, we critically reexamined historic collections of microvertebrate fossils from the Straight Cliffs formation, specifically the large sample housed by the Oklahoma Museum of Natural History. These fossils were originally sourced from the Smoky Hollow Member (Turonian) and John Henry Member (Coniacian-Campanian), with no fossils stemming from the lowest or highest parts of the formation (Primm et al., 2018).

We employed, qualitative and quantitative morphological analysis in an attempt to reproduce, falsify, or refine previous classifications of this material including, morphometric multivariate analysis (Larson & Currie, 2013). Notably, teeth from the Smoky Hollow Member previously classified as "protoceratopsian" and "ceratopsid" are reidentified as a relatively basal ceratopsomorph, likely *Zuniceratops*-grade. Dental material previously described as "hadrosaurid" compares well to the hadrosauromorphs *Jeyawati and Bactrosaurus*, and the early diverging hadrosaurid *Eotrachodon*. Theropod teeth include indeterminate dromaeosaurs and tyrannosaurs as well as an unusual paravian crown remarkably similar to remains from the Campanian of Spain (Isasmendi et al., 2022). Teeth from both members attributable to the enigmatic paravian morphotaxon "*Richardoestesia*" are exceptionally numerous in the collection. They can be discretized into the relatively slender, straight-crowned morphotype "*R. isosceles*" and the shorter, thicker, and more recurved- crowned morphotype "*R. gilmorei*" consistent with the morphology preserved in younger Campano-Maastrichtian formations (Larson & Currie 2013).

The taxonomic diversity of the Straight Cliffs Formation is similar to other Turonian faunas of the Western Interior Basin, notably the Moreno Hill formation, particularly the ceratopsian material. The assemblages also compare well at coarse taxonomic levels with the more intensely studied Campanian and Maastrichtian ecosystems in the region, lending support to the early (pre-Cretaceous Thermal Maximum) assembly of Late Cretaceous faunas. This and other previously unreported information on this poorly understood paleofauna continues to enhance our picture of a scantily understood part of vertebrate history.

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Theme Session: Global Perspectives on Mesozoic Lacustrine Ecosystems (Thursday, June 8, 2023, 4:30 PM)

ECOSYSTEMS OF THE MOENAVE FORMATION ACROSS THE TRIASSIC–JURASSIC TRANSITION

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The Moenave Formation of southwestern Utah was long under-studied paleontologically until the discovery of the