
**An overview of the McCoy Brook sauropodomorph
dinosaur bone-bed and description of 3D
photogrammetry methods for new research methods and
documentation of paleontology quarries and site
erosionsuture zone, southwestern Iberia**

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Shoreline exposures of the Lower Jurassic McCoy Brook Formation at Wasson Bluff near Parrsboro in Cumberland County, Nova Scotia, include syndepositionally faulted lacustrine, fluvial, debris flow, and aeolian dune facies. In August 1976, Paul Olsen and colleagues discovered the first sauropodomorph 'prosauropod' (c.f. *Ammosaurus*) dinosaur bones at Wasson Bluff, in a location that has become referred to as the "Princeton Quarry". The Wasson Bluff section received legislative protection as a Nova Scotia Special Place in 1990, after Olsen and colleagues identified a rich cache of small vertebrate fossils within the sandstone infill of paleo-talus basalt clasts. Additional dinosaur specimens were discovered, including a specimen located near a basalt talus slope by Neil Shubin and colleagues from Harvard University in 1986, and a small articulated specimen discovered at the Princeton Quarry in 1992–94 by Grantham, Hrynewich, and Adams.

In 1997, Fedak began the study of these dinosaur specimens and through subsequent field work collected skeletal remains of five additional dinosaur specimens at the Princeton Quarry. The Wasson Bluff dinosaur specimens were described in detail, can be recognized as distinct from *Anchisaurus/Ammosaurus*, and represent a mass-death bone bed that is the richest preservation of 'prosauropod' dinosaurs in North America, with additional specimens remaining to be collected. Paleontological study of the specimens has been challenging due to the compression and syndepositional tectonic deformation that is exhibited by nearly all dinosaur specimens from Wasson Bluff.

Resolving the taxonomic details of the McCoy Brook sauropodomorphs remains of great interest, particularly because in the past several years many new 'prosauropod' taxa have been described from Utah, Arizona, Argentina, and South Africa. Also, recent paleogeographic and paleoecology studies demonstrate 'prosauropods' were not present in Late Triassic North America ecosystems and that the McCoy Brook specimens represent the oldest evidence of 'prosauropods' in North America. Following a review of the significant findings from previous work, a new research approach for studying the Wasson Bluff dinosaurs is proposed based on a recently completed pilot. State of the art 3D photogrammetry software (Photomodeler) can now be used to document and reconstruct the complex tectonic, sedimentological, and taphonomic details of the specimens

in this important dinosaur bone bed. Results of preliminary trials using the photogrammetry techniques and 3D modelling software (Blender) are presented to demonstrate several unique benefits for paleontology based research. The photogrammetry techniques provide high-fidelity views and 3D data visualization for new research studies, and powerful tools for documenting sedimentary features and erosion rates at important paleontological sites such as Wasson Bluff. The methods and results will be of interest to other significant paleontology sites here in the Maritimes and (inter)nationally.