
Sedimentology and paleoenvironment of a Jurassic dinosaur bone bed, Parrsboro, Nova Scotia

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The Early Jurassic McCoy Brook formation at Wasson Bluff has been a site of dinosaur bone discoveries for over thirty years. The formation crops out on the north side of the Minas subbasin, deposited during the break up of Pangea and prior to the opening of the Atlantic Ocean. The first discovery of dinosaur bone was in 1976 with numerous excavations in 1998-2006 which yielded several articulated prosauropods within a confined bone bed. The prosauropod bone bed is of particular interest to the scientific community because it represents the richest prosauropod site in North America and the oldest dinosaur bones discovered in Canada. Recent field work took place in August 2013, led by Dr. Tim Fedak, where 15 disarticulated bones and bone fragments were collected in an eastern extension of the bone bed. The dinosaur material has been well documented by multiple researchers and the detailed sedimentology of this particular bone-bearing bed is now of interest. Assessing the stratigraphy at Wasson Bluff is complicated by syn-depositional faulting that occurred as the Fundy rift basin matured. Faults are present on a meter scale as well as a centimeter scale, as displayed by offsets of some bone.

During this study a comprehensive account was prepared of the bone bed strata and the strata immediately above, which have been described at a centimeter scale. Important features of the strata include interbedding of thin mudstone containing abundant micas with coarse- to medium-grained sandstone; isolated boulders presumably eroded from a paleocliff, and trough cross beds. Poorly sorted sands are also present, with some oversized, well rounded grains. These sediment characteristics lead to the conclusion that the dinosaurs were preserved in a river channel with episodic flow and eolian additions to the river sediment. This detailed account, as well as grain size analysis, thin sections, and paleoflow will be used to interpret the paleoenvironment in which the dinosaurs were buried.