

Tetrapod trackways in a fossil *Walchia* forest: a new discovery from the early Permian of Nova Scotia

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The discovery by Cory and Howard van Allen of an exceptional *Walchia* forest tetrapod habitat at Brule, in the Cumberland Basin of Nova Scotia, opens a window on early Permian ecology. The 500 m² site occurs within horizontal redbeds of the Cape John Formation, Pictou Group. The monotypic, mixed age stand of the conifer *Walchia* comprises casts of 41 trees *in situ*, foliar litter, cones and prostrate trees up to 20 m long, some with lateral branches. This is the first report of *Walchia* from Nova Scotia. The site provides a rare opportunity to reconstruct *Walchia* forest density and tetrapod ecology. At least 6 tetrapod ichnogenera are represented, provisionally ascribed to pelycosaurs, cotylosaurs and possibly, lepidosaurs; trackway analysis is in progress. At least 7 subparallel trackways (range = 25), consistent either with seymouriamorphs (cf. *Amphisauropus latus*) or edaphosauriomorphs (cf. *Ichniotherium*

cottae), occur on three successive bedding surfaces, indicative of non-random passage of the Brule tetrapods along a preferred route and suggestive of group behaviour. Herding, unknown to us in the Paleozoic, can neither be conclusively demonstrated nor ruled out, although we note that parallel trackways on a given bedding surface are spatially separated and not overprinted. Sedimentological evidence suggests that these trackways were imprinted over a short time interval on at least two occasions. The tracks are preserved in successive, mud-cracked, thin (5-10 mm) red silty sandstone beds with mud drapes, belying ephemeral (?seasonal) floods inferred to have been generated under a semiarid climate by the developing megamonsoon of Permian Pangea. Replicating the Brule trackways has called for a measure of ingenuity, given their problematic location in a briefly exposed intertidal zone.