Recent tetrapod discoveries and the changing view of the Carboniferous

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Over five years ago, a long-term field program focused on the fossil tetrapods of the Carboniferous of Nova Scotia was launched. It is widely known that Nova Scotia's fossil tetrapods are of global significance due to the earliest records of several key taxa represented by *Hylonomus*, *Archaeothyris* and *Paleothyris*. Our efforts have contributed new aspects of significance to Nova Scotia's Carboniferous tetrapods, including possible new growth series and CT data for *Dendrysekos* (=*Dendrerpeton*) with taxonomic re-evaluation, new embolomere diversity data for Point Edward, and new earliest occurrence data for several taxa otherwise known only from the Permian. The recent discovery of a fossiliferous stump from the Sydney Mines Formation, Cape Breton Island, remarkably, contains the remains of at least six taxa. Most notable among these is a virtually complete skull of a large pantylid recumbirostran. CT scanning reveals a highly specialized dental apparatus composed of opposing dental fields on the palate and coronoids, well advanced to that of any known tetrapod of equivalent age. As well, three partial, articulated skeletons of a varanopid synapsid, including an associated very small fourth, alludes to the possibility of a social aggregation — a behavior otherwise unknown from this clade until the Late Permian. A fragment of a large proximal femur is also attributable to a varanopid, and approaches the size and morphology of later occurring varanodontines, such as the Permian *Varanops*. Together these new data revise much of our current understanding of the composition and evolution of some of the earliest terrestrial tetrapod communities and their constituents.

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