



Mistaken Point Ecological Reserve: Protecting the World's Oldest Complex Macrofossils at a Newly Inscribed UNESCO World Heritage Site

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The late Ediacaran rocks of the Mistaken Point Ecological Reserve, Newfoundland, record the oldest known assemblage of large, complex fossils anywhere. These fossils represent the transition in the history of life on earth to large, architecturally complex organisms, following nearly three billion years of a microbially-dominated world. In July 2016, the Reserve was inscribed on World Heritage List. Inscription has led to increased geotourism demands on the locality, a consequence welcomed by the local community who wish to develop the economy. This is potentially at odds with the interests of Government and Researchers whose inclination is often to prohibit all activity that may adversely impact a site.

This presentation will outline several approaches being used to quantitatively measure potential historic and current damage to the Mistaken Point Ecological Reserve from geotourism activity, as well as natural events. Technologies such as LiDAR scanning, photogrammetry, and time lapse cameras are compared and contrasted for their suitability to monitor the integrity of fossil sites. Footwear erosion of fossil surfaces remains a concern of policy makers at the Reserve; experimental work to test the benefits of various footwear erosion reduction protocols is discussed. The legislative and management framework for the Reserve is reviewed, and the importance of building academic-community-government relationships examined. The benefits of geoconservation are shared by all in society – as such the importance of presenting geoconservation research outcomes in ways specifically tailored to local communities and policy makes is highlighted.