

Paper Number: 1678

The Last of the Ediacara Biota: The Precambrian-Cambrian Boundary at Mt. Dunfee, Nevada, USA

Smith, E.F.¹, Nelson, L.L.², Strange, M.A.³, Eyster, A.E.², Rowland, S.M.³, Schrag, D.P.², and Macdonald, F.A.²

¹Department of Paleobiology, Smithsonian Institution, PO Box 37012, MRC 121, SmithEF@si.edu

²Department of Earth and Planetary Sciences, Harvard University, 20 Oxford Street, Cambridge, MA 02138

³Department of Geoscience, University of Nevada, Las Vegas, 4505 S. Maryland Parkway, Las Vegas, NV 89154-4010

Here we report new stratigraphic, paleontological, and geochemical data from exposures at Mt. Dunfee, Nevada, USA, which preserve the last appearance datum (LAD) of Ediacaran biota, the LAD of *Cloudina*, the first appearance datum (FAD) of vertical burrows preserved as the trace fossil *Treptichnus pedum*, and a large negative $\delta^{13}\text{C}$ excursion in carbonate strata. The Ediacaran body fossil assemblages from the Deep Spring Formation include exceptionally preserved specimens of *Conotubus*, *Gaojiashania*, other vermiform body fossils, and possible *Wutubus annularis*. This is the first definitive report of *Conotubus* and *Gaojiashania* outside of South China, extending the known stratigraphic and biographic ranges of these taxa to a global scale. The younger of the two fossil assemblages occurs within the basal Cambrian negative $\delta^{13}\text{C}$ excursion, establishing it as the youngest Ediacaran fossil assemblage discovered to date. We further discuss how these sections correlate with better-known successions exposed in Death Valley and globally. The integrated dataset from Mt. Dunfee demonstrate that a large perturbation to the carbon cycle coincided with major biological turnover and the radiation of bilaterian metazoan ecosystems across the Ediacaran-Cambrian transition.

