

## **ABSTRACT**

**THESIS:** Stable Isotope Record of Soil Carbonates From the Eocene-Oligocene Transition, Badlands National Park, South Dakota, USA

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Sections in and around Badlands National Park, Custer County, South Dakota contain a wealth of faunal and floral data within the White River Group. The Chadronian and Orellan North American Land Mammal Ages define the Eocene-Oligocene boundary here. Faunal and floral changes associated with the Chadronian-Orellan interval have long been attributed to the global Greenhouse-Icehouse climatic transition.

Stable isotopes were obtained from paleosol carbonates across the Chadronian-Orellan boundary at three locations in Badlands National Park. Results show wide fluctuations of oxygen isotopes in the uppermost Chadronian and lower Orellan, while carbon isotopes remain relatively stable. The records provide an opportunity to compare the continental response to global change with a near-shore marine system response (Gulf Coastal Plain, USA); and to the world at large. Results indicate a decoupling of the terrestrial response to the Oi-1 glacial event from the marine response. Local conditions appear to play an important role in controlling the record of stable isotopes in paleosol carbonates in the region.