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### **Regional Stratigraphic Relations of the Trenton Limestone (Chattfeldian; Ordovician) in the Eastern North American Midcontinent**

The Trenton Limestone and equivalents have been one of most economically important Paleozoic units in North America. With renewed interests in and discoveries of hydrocarbons the Trenton-Black River of the Appalachian Basin, a detailed biostratigraphic and sequence stratigraphic study of this succession would be extremely useful for the ongoing hydrocarbon exploration. The Trenton Limestone in the primary study area (Ohio, Indiana, Illinois) is composed of a 10-400 foot thick succession of carbonates that contains a transition from a cratonic inner-shelf environment to a platform environment. Over 12,000 conodont elements were identified from six cores in the study area to gain a better understanding of the facies relations and sequence stratigraphy of the Trenton Limestone. The conodonts recovered are characteristic of the *Phragmodus undatus*, *Plectodina tenuis*, and *Belodina confluens* Conodont Zones (equivalent to part of the *Amorphognathus tvaerensis*-*Amorphognathus superbus* North Atlantic Conodont Zones). Within the Trenton succession, the conodonts provide not only an excellent biostratigraphic framework, but also are used to identify the M4-M5 and M5-M6 sequence boundaries. Transects were constructed using the six cores and geophysical logs from the study area (Ohio, Indiana, Illinois) along with previously described and sampled sections including the stratotype of the Trenton in New York State, sections in Pennsylvania, a well in the eastern Michigan Basin, and outcrop data from Kentucky. These transects provide a detailed understanding of the regional biostratigraphic and facies relationships of the Trenton Limestone in the eastern Midcontinent.