Taphonomy and paleoecology of a late Pleistocene megafaunal tar seep locality from Santa Elena, Ecuador

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Although South America lost more megafaunal genera than any other continent during the Late-Quaternary Extinction event (LQE), little is known about the chronology, causes or dynamics of these extinctions, especially in the northern part of the continent. Fossil deposits in the petroleum-rich sediments of the Santa Elena Peninsula in southern Ecuador contain some of the largest and best-preserved assemblages of Pleistocene megafaunal remains known from northern South America, and thus represent an opportunity to greatly expand our knowledge of conditions leading up to, during and following the LQE in this region. Sitio Tanque Loma is a late-Pleistocene locality on the Santa Elena Peninsula that preserves a dense assemblage of megafaunal remains in hydrocarbon-saturated soils along with exquisitely-preserved microfaunal and paleobotanical material. The fauna is dominated by the giant ground sloth Eremotherium laurillardi (Lund). Previous studies of the bones from the site have suggested there is some evidence that Tanque Loma may have been a butchering locality of Eremotherium. Thus this site represents an opportunity to test the still-largely-circumstantial hypothesis that humans were a major cause of the global LQE of the South American megafauna. In this study I compare the faunistic, chronological and taphonomic components of Tanque Loma with other late-Pleistocene tar-seep localities including Rancho La Brea in California, U.S.A., Inciarte in Zulia, Venezuela and Talara in Talara, Peru, in order to understand the formation of the Tanque Loma bone concentration and how late-Pleistocene ecological communities differed within and among regions of the Americas.

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