

ABSTRACT

The occurrence of asphaltic fossil localities within and surrounding the Page Museum at the La Brea Tar Pits in Los Angeles, California is extensive and has been recorded for decades as non-spatial data collected in a non-spatial database. The motivation for this project stemmed from the author's time as a volunteer at the Page Museum over the course of one year. The Page museum staff requested an efficient way to cartographically display fossil data to assist staff with visualizing the taphonomy of fossils. At the time of this study, this thesis is the first GIS project that the Page Museum had ever supported for mapping of fossils. Most current literature describing fossil-related web GIS applications reports data displayed at small-scales, and exact locations of fossils are not generally provided through the applications. The main objectives of this thesis project were to design and implement a fossil excavation spatial database, digitally curate data that previously only existed in paper form, display fossil data in an interactive web GIS application, and develop a framework to support spatial analysis and live data feeds of fossil data in the future. As part of this thesis project, known fossil localities were digitized from a La Brea Tar Pits survey map maintained since 1913. The fossil specimen location records from the museum's existing database were then joined to those newly digitized features to support the development of the spatial database of existing fossil localities within the park. The fossil features contained in the spatial database were then published to the web through the web GIS application also developed as part of thesis research, as a proof of concept intended to guide future Page Museum GIS projects. Visualizing the location of fossils is intended to help better communicate the paleontology of the La Brea Tar Pits to the museum staff, and eventually to the general public. Lastly, it is anticipated that this web GIS application will contribute to the current literature on documentation and visualization of extensive fossil deposits.