

USING REMOTELY SENSED DATA TO QUANTIFY THE SPATIAL EXTENT AND ACREAGE OF CONTAMINATED BRINE SITES IN SOUTHWEST TEXAS

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ABSTRACT

Although field checking of contaminated brine sites is relatively straight forward, the ability to field check a large and expansive area like southwest Texas can be time consuming and expensive. A more robust method is needed to accurately quantify brine contaminated sites in a more timely, efficient and cost effective manner. The overall goal of the project was to test a remote sensing methodology to accurately quantify the spatial extent and total acreage of contaminated brine sites in southwest Texas as a result of oil exploration. Landsat ETM data of southwest Texas were obtained and classified using supervised classification methodology with a maximum likelihood classification algorithm. Supervised classified was chosen since brine contaminated soil areas have distinct spectral signatures, especially in the dry season, which are easily distinguishable as training sites. Results indicate that Landsat ETM data can be an effective tool to use in quantifying brine contaminated areas larger than 2 acres in southwest Texas while smaller areas are more easily distinguished with high-resolution satellite imagery or DOQQ's.

[Poster Abstract]

In Prisley, S., P. Bettinger, I-K. Hung, and J. Kushla, eds. 2006. Proceedings of the 5th Southern Forestry and Natural Resources GIS Conference, June 12-14, 2006, Asheville, NC. Warnell School of Forestry and Natural Resources, University of Georgia, Athens, GA.