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Hyper spectral remote sensing of individual gravesites

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Previous studies have demonstrated the applicability of using hyperspectral remote sensing (HRS) techniques to detect mass graves. Detection following burial is based on changes in plant chemistry caused by a decomposing body's alteration of the surrounding soil environment as well as the changes in the soil characteristics. The case of a single grave poses a far more difficult detection problem, primarily because the body mass is much smaller than with mass graves. The goal of the present multi-year study is to demonstrate the feasibility of utilizing HRS in the detection of individual burial sites. This presentation summarizes the first two years of this study. Eighteen pigs (*Sus scrofa*) carcasses (~170-200 lbs. each) buried in a temperate terrestrial environment were used as human cadaver proxies. We examined the effects of three gravesite scenarios – surface, 30 cm and 90 cm soil cover (both with and without an external garbage bag) on the detectability of single carcasses from an airborne hyperspectral sensor over a four month period. In addition to the airborne sensor, a portable spectroradiometer was used to collect plant spectra and soil spectra in the lab (the soil and plant samples were collected coincidentally with the airborne imagery). This study compares and contrasts the signatures of graves at different burial depths with and without garbage bags and discusses the influence of these two factors on the detectability of single graves using this technology as well as the chemical basis for differences.

Biography

Eva Snirer received her Bachelor of Arts in Archaeology-Physical Anthropology and Post Baccalaureate Diploma in Criminology from Simon Fraser University. She is currently finishing her Master's of Science degree at McGill University.

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