



## Physical Anthropology Section – 2003

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### **H65 Utilizing Ground Penetrating Radar and Three-Dimensional Imagery to Enhance Search Strategies of Buried Human Remains**

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The purpose of this paper is to present to the forensic community the advantages of a collaborative approach when searching for buried human remains.

Locating the clandestine burial of human remains has long perplexed law enforcement officials involved in crime scene investigations, and continues to bewilder all the scientific disciplines that have been incorporated into their search and recovery. Many notable forensic specialists and law enforcement agencies, in an effort to alleviate some of the bewilderment that commonly accompanies the search for a buried body, suggest that multidisciplinary search efforts are becoming more of a necessity, and less of an option.

Research at the University of Tennessee's Anthropological Research Facility (ARF) in Knoxville supports this theory through a collaborative research effort directed toward the development of more efficient and effective methods in the search for, and detection of, buried human remains. The Department of Anthropology, in conjunction with the University's Department of Biosystems Engineering and Environmental Science, has coupled the use of ground penetrating radar (GPR) with 3-dimensional imagery programs to better detect buried human targets.

Two different ground penetrating radar systems, the SIR-20 and the GPR-X, were employed to obtain 27 designated scans over six constructed grave plots. This procedure was replicated every 4-6 weeks, over an eight-month period. Two and three dimensional imagery programs were then applied to the acquired images, which in turn were compared by GPR system used, and overall changes that occurred within the graves over time.

The results of this research support and acknowledge that GPR is capable of enhancing field methods in the search for clandestine burials, and when coupled with target-specific geophysical imagery software, contributes valuable working knowledge in regards to the contents of the burial itself. Hence, such resources can only be seen as beneficial to a search team's endeavors.

**Buried Human Remains, Ground Penetrating Radar, 3-Dimensional Imagery**