H32   The Landscape's Role in Dumped and Scattered Remains

Mary H. Manhein, MA*, Ginesse Listi, MA, and Michael Leitner, PhD, Department of Geography and Anthropology, Louisiana State University, 227 Howe-Russell, Baton Rouge, LA

The goals of this presentation are to assess and understand the relationship between the landscape and dumped bodies.

In February, 1987, at the American Academy of Forensic Sciences Annual Meeting in San Diego, Dr. Milton Newton, a geographer in the Department of Geography and Anthropology at Louisiana State University (LSU), co-authored and presented a paper in the Criminalistics Section entitled "Geoforensic Analysis of Localized Serial Murder: The Hillside Stranglers Located." In that groundbreaking paper, Newton used spatial analysis without computer technology to demonstrate that geography can be a valuable forensic tool to aid in capturing serial killers. In his words, "The classification of serial murderers as to 'type' becomes important when we consider the geographical need to map phenomena according to kind." Newton's work is just one example of the ways in which he and others have applied such mapping techniques to a wide variety of different spatial activities. Since the 80s, advances in modern computer technology have allowed various researchers to more quickly, efficiently and easily manipulate geographical data to demonstrate the impact of the landscape and environment on human activities. Additionally, forensic scientists have taken advantage of such powerful techniques. Computerized mapping assists law enforcement agencies in strategic planning, crime analysis, and other operations. In the past, the applications have ranged from simple pin maps, or other mapping analyses, to the organization of information in usable databases.

In this research project, the authors have combined the modern technology of the Global Positioning System (GPS), Geographic Information Systems (GIS), and Spatial Analysis (SA) with remotely sensed data, including Digital Orthophoto Quarter Quadrangle (DOQQ) images, to evaluate and analyze deposition sites of human remains from across Louisiana. The LSU Forensic Anthropology and Computer Enhancement Services Laboratory (FACES Lab) analyzed 100 for commonalities using GIS, GPS, DOQQ's, and SA. These cases included those delivered to the FACES Laboratory and a subset of 32 cases retrieved in the field by FACES Lab personnel.

In analyses of the larger data set, the landscape played a vital role in the ultimate location of the body. Also, the local taphonomic processes impacted the body's discovery and recovery. Variables considered in these analyses included season of the year, setting (urban, rural, or suburban), vegetation cover, easiest access to site, natural or manmade barriers, and the effect of scavenging animals.

The results of various statistical tests and spatial analysis on the subset of 32 cases demonstrate no statistically significant relationship between time since death and dispersal distance. Also, analysis shows that the circular variance, i.e., the direction of dispersal around the original dumpsite, appears to be random with respect to postmortem interval. On the other hand, a significant negative relationship exists between circular variance and distance, but, due to a small sample size, this result needs to be interpreted with caution.

To summarize, the results of this research clearly show that modern technology can provide forensic scientists with the tools needed to more accurately and efficiently interpret the landscape's role in the investigation of dumpsites.

Dumped Bodies, Geographic Analysis, Anthropology