

EXPERIMENTAL DECOMPOSITION IN THE NORTHEAST IN THREE DIFFERENT
MICROENVIRONMENTS

Jessica Rottenstein

Abstract

It is very important for the forensic anthropologist to accurately estimate the postmortem interval (PMI) or time since death (Sledzik 1997). Without proper experimental studies and documentation of specific taphonomic processes, such as decomposition, the estimated postmortem interval may be skewed. As of today, the University of Tennessee-Knoxville Anthropological Research Facility (ARF) is the sole contributor to experimental studies in human decomposition in the United States (Srnska 2002). This facility allows for controlled experiments in a Southeastern environment (Tennessee). When addressing rates of decomposition, the environment is an essential differentiating factor (Bass 1997). Although studies in human decomposition are prolific in the southeast because of ARF, studies in the northeast are lacking.

The goal of this study is to document a decomposition time line in three different microenvironments for the Northeast. Three sites for deposition were created with varying degrees of sun and shade. To achieve this goal 35 lb pigs (*Sus scrofa*) are used instead of human subjects. The use of a pig model was chosen as a substitute for this study because of availability and similar decomposition rates (Payne 1965, Morton and Lord 2002).

Three *Sus scrofa* carcasses were placed in Pennington NJ to decompose over the summer months. All carcasses were 35 lbs and fresh at time of deposition. All data pertinent to decomposition were collected three times per day until skeletonization or mummification. Subsequently, data was collected every other day for the remainder of June then weekly until the end of September. Beginning October 1st no changes in decomposition had occurred weekly, therefore readings were pushed back to every other week. In addition, weather data was collected daily at each site to record accumulated degree days to compare the three sites. Weather data from two other weather stations (Trenton National Weather Station and Hopewell Valley Regional High School) were collected daily to compare the experimental sites to recorded data.

Overall the shaded carcass reached skeletonization on day 9.5. The intermediate carcass reached skeletonization on day 91, and the full sunned carcass reached skeletonization on day 131. Throughout the early stages of decomposition (stage 1 and 2), the carcass placed in the sun progressed one day faster than the carcasses placed in the shade and intermediate degree of sun and shade. However, the carcass deposited in the sun was the last carcass to skeletonize; this is due to a long period of mummification.