H13 Postmortem Interval of Surface Remains During Spring in Southeast Texas

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After attending this presentation, attendees will learn the effect of environmental factors on decomposing human remains located on the ground surface in southeast Texas during the spring season. In the past, decomposition studies have been conducted mostly on pig carcasses in different types of climates. Southeast Texas has a subtropical humid climate which is quite different than climates in previous studies. The present study was conducted on a human cadaver in the spring season in a sun-exposed location at the Southeast Texas Applied Forensic Science Facility (STAFS), located in the Center for Biological Field Studies at Sam Houston State University, Huntsville, Texas.

This presentation will impact the forensic science community because the data collected from the surface remains will show the postmortem interval and body changes that occur while exposed outdoors during the spring season in southeast Texas. This data will be informative information that can be used in law enforcement investigations involving human decomposition in southeast Texas or other geographic areas with similar climates.

A previous study done in Saskatchewan, Canada on pig carcasses (Sharanowski et. al, 2008) measured the rate of decomposition and insect activity in the fall, spring, and summer in a shaded and sun-exposed location. There were three pig carcasses placed at each location and secured to the ground so that scavengers could not remove the carcasses. The pig carcasses were clothed in long sleeve shirts when placed for the observation period. The spring season in the Saskatchewan experiment (sun-exposed area) related most to the research done on the subject at the STAFS facility. The spring season time frame recorded for the Saskatchewan, Canada study was May 17, 2000 until June 18, 2000. The average temperature at the sun-exposed site was 17.8 degrees Celsius. The conclusion of the study conducted in Canada was that decomposition occurred at a much faster rate during the spring season with little insect activity.

Sam Houston State University recently began research at Southeast Texas Applied Forensic Science Facility (STAFS) to study decomposition and insect activity on various human cadavers under different environmental conditions. The test subject was an unclothed middle-aged male. He was placed on the ground surface in the outdoor facility, in an unobstructed, open area, in direct sunlight. The subject was placed during the spring from March 9, 2009 until May 29, 2009. The average temperature during the study time period was 19.22 degrees Celsius and the average rain fall was 0.0134 inches. Climate data was recorded at two hour intervals, twenty four hours per day over the three month period. Vigorous insect activity was seen throughout the study.

At the conclusion of the study some skeletal elements were exposed, but the majority of bone elements remained covered by desiccated tissue. Portions of the upper and lower limbs of the body, skull mandible, and cervical vertebrae had been moved from their original positions as a result of scavenger activity. A similar decomposition pattern was seen on the STAFS' subject as was recorded in the Canadian study with skin and soft tissue desiccated. The decomposition findings were not expected in the humid climate of Southeast Texas.

With heavy rain in mid-March the desiccating body tissue moistened, but once the rain ceased, it immediately dried and remained desiccated for the remainder of the study.

Decomposition, Surface Remains, Southeast Texas

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