A138 A Preliminary Decomposition Study Within the Willamette Valley (WV) of Oregon: Multi-Method Comparison and Sharp Force Trauma Effects

Cheyenne Collins, Chico, CA 959264118; Jeanne McLaughlin, PhD, University of Oregon, Eugene, OR 97403-1224; Frances J. White, PhD, University of Oregon, Anthropology, Eugene, OR 97405-1218*

Learning Overview: After attending this presentation, attendees will understand: (1) how decomposition rates within the WV compare to previous research conducted in the region; (2) how Anderson's and VanLaerhoven's stages of decomposition model compares to Megyesi et al.'s Total Body Scoring (TBS) system in Oregon; and (3) how the increase in the number of open wounds (sharp force trauma) influences decomposition rates within the study environment.[1,2]

Impact on the Forensic Science Community: This presentation will impact the forensic science community by increasing the data available on decomposition, taphonomic variables, and Postmortem Interval (PMI) estimation in an understudied region.

Determining time since death (the PMI) is an essential part of medicolegal death investigations. PMI can give investigators important information about time of death and may help answer questions about the events leading up to death.[3] The purpose of this study was to collect decompositional data from an understudied region (Oregon) and compare multiple scoring methods that are current standards developed in regions such as Tennessee in order to characterize the effects of regional variation on decomposition and taphonomy. Six pig heads were placed on the ground surface in a fenced enclosure and exposed to the natural winter environment of the WV of Oregon for 60 days. Three of these pig heads underwent Sharp Force Trauma (SFT) infliction in order to compare rate of decay with remains that have a singular SFT wound. Stage of decomposition, temperature, precipitation, and preliminary entomological data were collected throughout the 60-day observation period. These data were used to compare Anderson's and VanLaerhoven's stages of decomposition model to Megyesi et al.'s TBS system in the WV; compare and contrast similar studies from different seasons within the WV; and analyze the effects of an increase in the number of open wounds (SFT) on decomposition rates and insect activity.[1,2]

This study found that decomposition in the WV during the cold/wet season (winter) did not closely align with either Anderson and VanLaerhoven or Megyesi et al.[1,2] Analyses of statistical, qualitative, and inter-observer error suggest that neither scoring method is a perfect fit for the WV. Winter decay was found to occur at a slower pace when compared to summer decay and was overall more variable. Partial mummification and rehydration of the remains were observed multiple times during this study. An increase in the number of SFT wounds did not influence the rate of decay. Sub-environmental differences were found to have an effect on decomposition rate, and a considerable amount of small animal and avian scavenging of the remains occurred throughout the study. Scavenging influenced the rate of decay through loss of mass that propelled decomposition forward.

Reference(s):

1. Anderson G.S., VanLaerhoven S.L. Initial Studies on Insect Succession on Carrion in Southwestern British Columbia. *Journal of Forensic Science* 41, no. 4 (1996): 617–625.
2. Megyesi M.S., Nawrocki S.P., Haskell N.H. Using Accumulated Degree-Days to Estimate the Postmortem Interval from Decomposed Human Remains. *Journal of Forensic Science* 50, no. 3 (2005): 1–9.
3. Haglund W.D., Sorg M.H. Introduction to Forensic Taphonomy. In *Forensic Taphonomy: The Postmortem Fate of Human Remains*, Boca Raton: CRC Press, 1997.

Taphonomy, Oregon, Decomposition

*Presenting Author