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DIRTY PIGS: DECOMPOSITION AND TAPHONOMY OF CLOTHED AND NUDE NON-HUMAN ANIMAL MODELS IN THREE MICROCLIMATES IN AN ARID ENVIRONMENT WITH AN EMPHASIS ON MICROBIAL COMMUNITY PROFILING

Allison M. Sharplin

Abstract

This thesis explores forensic taphonomy focusing on the decomposition process for clothed and unclothed subjects in three microclimates in an arid outdoor setting as well as understanding the effects of the Cadaver Decomposition Island (CDI) on the soil community as nutrients and bacteria are released from remains. The decomposition aspect involves the time to produce a skeleton during summer months in Warner Springs, California in clothed and unclothed domestic pig (*Sus scrofa domestica*) subjects. Six subjects were placed in pairs of one clothed and one unclothed pig in wire enclosures in three outdoor microclimates: full shade, partial sun, and full sun. Observations of the subjects' environmental conditions and decomposition progress were made regularly during the day until there were not changes between checks. Prior to placing the subjects and after their soft tissue had decomposed, soil samples were taken from the study locations directly beneath the remains. The chemical and physical soil characteristics were tested following United States Department of Agriculture (USDA) Soil Quality Test Kit Guidelines for assessing nutrients in agricultural soils. Additional understanding of cadaver-soil interface was achieved through genetic testing of the decomposition soil while seeking to extract, amplify, and sequence microbial DNA from the digestive track of the decomposing subjects, as well as DNA from the experimental subjects. Methods and results used in this project could be applied to clandestine grave discovery and migrant deaths in the American South West.