## A43 Assessing How Repetitive Carrion Placement Affects Vulture Scavenging Behavior

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After attending this presentation, attendees will be aware of how sites with repetitive carrion placement, such as an outdoor forensic facility, affect animal scavenging rates and behavior. Attendees will also become aware of the applicability of temporal scavenging data collected at the Texas State Forensic Anthropology Research Facility (FARF) to forensic contexts that lack the continuous carrion presence found at this FARF.

This presentation will impact the forensic science community by addressing the possibility of learned behavior and accelerated arrival times in avian scavengers at the FARF as a result of repetitive decomposition studies occurring at this site.

In recent years, forensic anthropology research facilities have gained much attention because they offer a means of conducting decomposition research that seeks to benefit law enforcement. These outdoor decomposition facilities provide invaluable skeletal data with associated demographics, but no researchers have investigated the impact these facilities may be having on vertebrate scavenging behavior. This study focuses on vulture scavenging behavior and addresses the possible variability in vulture scavenging rates at the FARF as a consequence of repetitive decomposition studies occurring at this site.

To address the possibility of learned behavior in vultures scavenging at the FARF, a series of 14 decomposition trials were conducted at three site types over a two-year period to test the hypothesis that the type of scavenging site affects the amount of time between carrion exposure and the initiation of a vulture scavenging event. Each trial involved placing a single juvenile pig at each of the three site types, which included the following: (1) Texas State FARF — repetitive carrion placement in a single location; (2) Rotate Sites — repetitive carrion placement at different locations; and, (3) Stationary Site — repetitive carrion placement in a single location. The FARF and Stationary Sites were over 1km apart and the Rotate Sites were distributed across an area of 6,000km$^2$ spanning from Austin to San Antonio. The three pigs used in each trial were placed in uncaged locations on a single day. All sites were equipped with a motion-activated infrared wildlife camera and a weather station programmed to record climatic variables using one-minute sampling intervals. The cameras and the weather stations were in operation 24 hours a day throughout the duration of the study.

Temporal data were calculated for minutes between researcher departure from the site until the time of vulture arrival at the carrion. Departure time was chosen based on the assumption that vultures would not arrive while a human was at the site. In addition, Accumulated Degree Minutes (ADM) were calculated for the time between pig placement and vulture arrival to account for the assumption that vulture arrival at carrion is based on their detection of temperature-dependent volatiles being omitted during different stages of decomposition. To account for some of the pigs being placed in the evening after vultures had returned to their roosts, a second ADM value was calculated for temperatures only recorded during the day. Solar radiation values of 0.6 W/m2 (i.e., nighttime) were used to distinguish daytime and nighttime temperature values.

One-way Analysis of Variances (ANOVAs) testing for differences between the type of scavenging site and time of vulture arrival were performed on the three temporal values described above and reveal an absence of statistical differences between site type and vulture arrival times. Results also indicate that scavenging rates obtained through the FARF research are applicable to scavenging rates occurring outside of FARF within the 6,000km2 geographical range used in this study so long as the carrion size, type, and stage of decomposition are the same between the FARF and the location in question. Furthermore, the similarity between scavenging rates at the FARF and other sites were based on carrion placement occurring two weeks apart, which suggests this may be a best practices temporal benchmark for future scavenging studies. Lastly, this study reveals that although variation exists in vulture scavenging rates, the repetition of carrion using two-week intervals at a particular site does not accelerate or cause differences in vultures' arrival time at recently exposed carrion.

**Vulture Scavenging, Carrion, Taphonomy**