H3 Comparison of Vulture Scavenging Rates at the Texas State Forensic Anthropology Research Facility Versus Off-Site, Non- Forensic Locations

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After attending this presentation, attendees will gain an enhanced understanding of vulture scavenging occurring at the Texas State Forensic Anthropology Research Facility (FARF), and the impacts vulture scavenging may have on future forensic investigations involving decomposition rates obtained at this site.

This presentation will impact the forensic science community by presenting an overview of vulture scavenging at FARF in comparison to vulture scavenging at off-site, non-forensic locations. Furthermore, the results from this study illustrate the need to incorporate avian scavengers into models pertaining to scavenger succession to help insure an accurate interpretation of taphonomic events during forensic anthropology investigations.

FARF is an outdoor laboratory dedicated to studying the rates of human decomposition and has an abundance of turkey vultures and black vultures residing nearby. Both vulture species are obligate scavengers and common visitors to the FARF site, thereby providing an excellent opportunity to study how soon after death vultures will arrive to feed on either carrion or a human cadaver. However, vultures are intelligent birds capable of recalling their prior successful scavenging locations, which raises the question, "Have the vultures residing near FARF learned that this site provides a reliable source of food, and if so, are the vulture scavenging rates at FARF the same as scavenging rates at off-site, non forensic locations?"

Substituting pigs for human models, two series of decomposition trials were conducted at FARF and in surrounding locations on the Freeman Ranch, which is a 4,204 acre working cattle ranch, to determine at what point during the postmortem interval vultures will arrive to scavenge and if these arrival times are the same at FARF in comparison to off-site locations.[1] Trial one began on July 01, 2011 and Trial two began two weeks later. Each trial involved three fetal pigs weighing between 1.38kg and 2.06kg and three separate field placement sites. The first pig was placed at FARF, the second pig was placed at an off-site ranch location that remained constant during both trials, and the third pig was placed in an off-site location that differed between trials. The sites shared similar vegetation and geographical features, but all sites were at least 1.5km apart. The three pigs used during Trial one were placed at their corresponding sites on same day, and all pigs were left to decompose without the protection of a cage. Trial two involved identical methods, with the only difference being the start date. Furthermore, each site was equipped with a motion activated infrared wild life 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.

Results indicate that vultures are the primary scavengers at FARF and surrounding Freeman Ranch locations. Vultures arrived at five of the six pigs during the first 17 hours following pig placement, and at two of the pigs, a Crested caracara (Mexican Eagle) fed alongside turkey vultures and black vultures. A canine living on the ranch property scavenged the sole pig not scavenged by vultures. The failure of vultures to scavenge this pig is attributed to the pig's placement occurring late in the day and close to the time that vultures were preparing to return to their roosts. The canine took the pig in the middle of the night approximately eight hours following field placement.

For each of the five pigs scavenged by vultures, the vultures arrived, skeletonized the pig, and departed the site in less than three hours. This rapid scavenging reduces the probability that forensic investigators will observe vultures feeding at a crime scene, but systematic field searches conducted during this research revealed that the presence of down feathers in the surrounding vegetation and an intact vertebral column can be reliable indicators of recent vulture scavenging. Lastly, no differences were detected between the vultures' arrival times and scavenging behavior at FARF compared to the off-site locations, indicating that vultures are currently not impeding on the applicability of uncaged decomposition rates obtained at this facility.

Reference:

1. Barnes PW, Liang SY, Jessup KE, Ruiseco LE, Phillips PL, Reagan SJ. Soils, topography and vegetation of Freeman Ranch, Freeman Ranch Publication Series No. 1. San Marcos: Southwest Texas State University Press, 2000. http://www.txstate.edu/freemanranch/Research.html.

Vulture Scavenging, Postmortem Interval, Taphonomy

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