



Physical Anthropology Section - 2012

H74 The New Kid on the Block: Trials and Tribulations of Building an Outdoor Research Facility and the Preliminary Results on the Rate and Pattern of Decomposition in Southern Illinois

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After attending this presentation, attendees will gain knowledge of the decomposition rate and pattern sequence of buried and surface remains over a one-year period in southern Illinois. Scientists and law enforcement officials involved in human remains investigation will benefit greatly from both the data and visuals presented. Furthermore, attendees will experience the announcement of the newest open air forensic research facility, the Complex for Forensic Anthropology Research (CFAR) at Southern Illinois University-Carbondale. Information on the establishment and maintenance of an open air facility such as CFAR will be given, citing political and social issues that have arisen during formation.

This presentation will impact the forensic science community by instituting a baseline of information for the decomposition of soft tissue in the southern Illinois region. The findings of studies at CFAR will prove more applicable to forensic cases in climatological and environmentally similar regions than those from any other comparable facility.

CFAR is located within the city limits of Carbondale, in Jackson County, IL and is a unit of the Department of Anthropology at Southern Illinois University - Carbondale. This location represents a geographic area which is located farther north, has the lowest average temperature, the most acidic soil, the worst soil drainage, and is the second lowest in elevation of all forensic anthropology research facilities in the United States. CFAR is roughly 1/3 an acre of fenced lightly-wooded grounds that provide intermittent periods of areas of shade and sunlight. The open-air location is supplemented by a freestanding office.

Unlike the most recently developed research facilities, CFAR is a bottom-up endeavor, with the driving force of the facility being the founders, a graduate student, and a first year faculty member. Political and social obstructions have played a significant role in the formation of CFAR. Due to university constraints, the location of CFAR has changed twice. City ordinances of animal and human rights were investigated and law enforcement was notified of the project. University administration meetings have been undertaken up to the Chancellor level. Even through this barrage of potential stumbling blocks, CFAR has been approved to carry out animal and human experiments, the public has been notified of the facility, and the facility has hosted two law enforcement training seminars.

Currently, 10 pigs (*Sus scrofa*) are being assessed to establish baseline rates and patterns of decomposition at CFAR. Seven of these subjects were buried at varying depths (25-46cm) and five have been placed on the surface in both sunny and shaded areas. The surface subjects have been covered with 18-gauge wire fencing to prevent scavengers from removing them. Research subjects were deposited at two experimental conditions (October and December 2010). iButton Link thermochrons (DS1921G) have been placed at CFAR to monitor temperature at the site for use of accumulated degree days as the method of quantifying decomposition rate. Observations of the decomposition stage for each subject were collected daily following the method of Megyesi et al., using the Total Body Score (TBS) for each subject. Motion-activated cameras were used to record still photographs and video of research subjects in the absence of the authors. This proved extremely useful in identifying the types and activities of avian and mammalian scavengers in the region.

The recorded data show significant differences in both the rate and pattern of decomposition when CFAR is compared to other facilities. CFAR has exhibited a range of scavengers, such as opossum and turkey vultures, which consume buried and surface internments from one day to six months after burial. Furthermore, CFAR has exhibited slower progression in time between decomposition stages, and several of the subjects mummified unexpectedly. Preliminary results suggest the postmortem interval at CFAR may be delayed by as much as three weeks when compared to other regions, although this may be the direct result of cooler temperatures in late fall. Further research is necessary and ongoing.

Outdoor Research Facility, Taphonomy, Forensic Anthropology