H116 Regional Taphonomy and Estimations of the Postmortem Interval From Northern California

Colleen F. Milligan, PhD, P. Willey, PhD, and Eric J. Bartelink, PhD, California State Univ, Chico, Dept of Anthropology, Butte #311, 400 W First St, Chico, CA 95929-0400*

The goal of this presentation is to examine the complexity of estimating the postmortem interval in the context of Northern California's varied environments. After attending this presentation, attendees will gain an understanding of the challenges of assessing regional taphonomic processes and the impact of various environments on the active decomposition of human remains.

The presentation will impact the forensic community by highlighting the role of various factors on the distribution of human remains, the rate of decomposition, and the variation seen both between and within regions. These factors contribute to a complex and varied estimation of time-since-death.

In the context of varied microenvironments, estimations of postmortem intervals must consider factors beyond those often considered in controlled studies of decomposition. This presentation will highlight several of the most prominent factors affecting postmortem interval estimations in Northern California. The factors considered include the following: scavenging; fluvial transport; high altitude environments; and, the influence of vegetation growth.

Northern California is both climatically and geographically diverse. The region encompasses the San Francisco Bay Area; the Sacramento Valley and part of the San Joaquin Valley; various mountain ranges, including the Sierra Nevada and the Cascade ranges; large national forests; and, massive waterways, such as the Sacramento and the Klamath Rivers. The climatic zones include coastal environments, Mediterranean zones with dry, hot summers and mild, wet winters, and mountainous environments with substantial snowfall. The varied environments encountered in Northern California provide a unique range of conditions for the recovery and analysis of human remains.

The California State University, Chico-Human Identification Lab (CSUC-HIL) provides search and recovery and forensic anthropology services to most counties in Northern California. On average, the CSUC-HIL is contacted for 10 – 15 searches annually, ranging from clandestine burials to surface-scatter sites. In the last year, these searches have been conducted along several major rivers in Northern California, at altitudes above 7,000 feet, in national forests, in the agricultural areas of the Sacramento Valley, and in coastal areas. Most often, recovered human remains exhibit various taphonomic changes, including exposure to natural elements and scavenging from both small and large scavengers.

Given the diversity of possible environments, the study of taphonomic changes to human remains encompasses a multi-disciplinary approach. The CSUC-HIL incorporates entomologists, pathologists, archaeologists, botanists, and other forensic scientists in scene assessments during recovery efforts. In particular, many of the searches conducted by the CSUC-HIL are complemented by the assessment of vegetation growth rates for the various flora found in Northern California. The use of a forensic botanist in these contexts greatly enhances the ability to narrow the time frame considered for the deposition of recovered remains, as well as the changes to the site of recovery over time. In addition, the CSUC-HIL recovery team often includes a forensic archaeologist when the context of the search is buried remains. The partnership between physical anthropology and archaeology increases the understanding of soil formation and disruption patterns.

This presentation will discuss current and future directions of research related to taphonomic patterns. The prevailing trend has been a steadily increasing case volume for the CSUC-HIL. In light of an increased presence in the search and recovery of human remains in Northern California, research objectives focus on those areas that most affect regional taphonomic patterns. Specifically, studies are focused on examining similar taphonomic factors across multiple microenvironments. These factors include the patterns of fluvial transport, varied access of scavengers in remote sites with dense vegetation or extreme climatic conditions, and the patterns of distribution related to various scavengers native to the region.

Forensic Anthropology, Taphonomy, Postmortem Interval

 ** Presenting Author*