



## Physical Anthropology Section - 2013

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### H117 A Two-Pronged Model for Regional Taphonomic Research: A Case Example From Mesa County, Colorado

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The goals of this presentation are to: (1) characterize expected and observed taphonomic variation in an arid, high-altitude biome; and, (2) exemplify a taphonomic research model using both experimental and historic research paradigms.

This presentation will impact the forensic science community by providing better appreciation for the high-altitude desert as a unique taphonomic environment.

Experimental taphonomic studies isolate and examine variables responsible for differences in the decomposition process. Taphonomic research may also be historic, using past cases and the known taphonomic influences in those cases to better understand the decomposition process. This study is an example of combining the two paradigms.

This study uses both approaches to assess the variability in taphonomic variation in west-central Colorado, including Mesa County, the site of Colorado Mesa University's Forensic Investigation Research Station. Mesa County is on the Colorado Plateau, on the western slope of the Rocky Mountains, and east of the Great Basin. The county includes the largest city on the Rocky Mountain's western slope, Grand Junction.

The Forensic Investigation Research Station was established in 2012 as a taphonomic facility to examine decomposition in an arid, high-altitude desert. The area is at an altitude of approximately 4,600 feet above sea level and receives an average of about 9in of precipitation per year, with very low humidity. Vegetation is xeric, consisting mainly of scattered sage and rabbit brush.

While the Station is initializing a human donation program, domestic pigs are currently being used for research. For this study, beginning in the fall of 2012, a freshly-killed pig is placed outside in the Station at the first of each month and left outside for one year. This will continue for one year so that a total of 12 pigs are used. The goal is to create a decomposition baseline for the region. Data collected will include temperature, lumens, humidity, entomological data, and a total body score.

The historic approach consists of a review of Mesa County area forensic cases with an assessment of the taphonomy of the remains in each case. The rate and pattern of decomposition in the cases are compared to the baseline data from the facility. Discrepancies between the two will identify variables affecting decomposition that will be added to the baseline study.

The research at Mesa County, Colorado, adds to the growing taphonomic database with information on the arid, high-altitude desert environment. It also adds to extant examples of combining experimental and historical research paradigms in taphonomic research.

**Taphonomy, High Altitude, Desiccation**