**Rocky Mountain High….and Higher: Colorado Mesa University Forensic Investigation Research Station Human Decomposition Projects.**

**Biographies**

Melissa Connor, PhD.

Melissa Connor, Ph.D., is the Director of the Forensic Investigation Research Station at Colorado Mesa University and Professor of Forensic Anthropology. She was appointed Director in 2012, coming from Nebraska Wesleyan University where she was director of the Master of Forensic Science program. She has 30 years of archaeological experience and has worked in forensic science for the last 20 years. Dr. Connor specializes in forensic archaeology and is the author of Forensic Methods: Excavation for the Archaeologist and Investigator. Connor specialized in mass grave sites, working in post-conflict areas throughout the former Yugoslavia, and in Rwanda, Sri Lanka, Cyprus, and Nigeria.

Christiane Baigent, MSc

Christiane Baigent, MSc. is currently working on her Ph.D. at Southern Illinois University. Her dissertation topic is the development of predictive models for the estimation of postmortem interval in high-altitude environments, which she is investigating at the FIRS-TB40 site. She has worked in the Rocky Mountain Region of Colorado since 2010 in both research, and practical capacity as a member of forensic anthropology consult teams and has worked on bioarcheological projects throughout the northwest region of Peru. Her current research includes the effect of altitude on decomposition and patterns of longitudinal osseous change, the effect of PMI on the presentation of blunt force trauma, region-specific models and standards for PMI estimation, and the development of diagnostic criteria for taphonomic change.

**Abstract**

Colorado Mesa University currently supports the Forensic Investigation Research Station (FIRS; in Mesa County, CO) at 4600’ AMSL and FIRS-TB40, a new satellite facility (Park County, CO) at 9600’ AMSL. The FIRS studies active human decomposition with the collective goal of: (1) establishing models for the estimation of postmortem interval within Colorado’s unique microenvironments; (2) validating tests performed in human cohorts within regions outside of Colorado; (3) developing new models in human decomposition and skeletal disarticulation to assist law enforcement in active investigation; (4) providing research and education opportunities for students and professionals across medicolegal subdisciplines; and (5) providing forensic anthropology services (search/recovery and skeletal analysis) to law enforcement agencies.

**I. Decomposition on the Arid Western Slope of Colorado**

**Melissa Connor**

The Forensic Investigation Research Station (FIRS) has been operational since 2012 and studies longitudinal human decomposition in the semi-arid steppe environment of Western Colorado. The fenced facility Decomposition in this region is characterized by rapid mummification and research is necessarily focused on the mechanisms and timing of desiccation. This presentation will: (1) introduce the concept of regional decomposition sequences versus universal models; (2) introduce the environmental variables that makes the study of decomposition on the Western Slope unique; (3) introduce the Total Body Desiccation Score (TBDS) developed within longitudinal study of a human cohort at FIRS; and (4) describe tissue changes observed in the desert within the trajectory of desiccation, characterized by limited scavenger activity.

**II. Decomposition at High-Altitude, Comparative Research and Scavenger Behavior**

**Christiane Baigent**

With the support of the Park County Coroner and Commissioners, CMU-FIRS acquired 40-acres of land in the Rocky Mountain Region of Colorado (FIRS-TB40). FIRS-TB40 is 9500 ft. AMSL in the South Park region of the central Rockies. The site is bisected north to south by a steep, rocky moraine-like ridge covered in short prairie grass and stunted juniper. This presentation will: (1) introduce the variables considered unique to high-altitude decomposition; (2) report the results of a pilot study performed using a pig model to compare decomposition rate and pattern between high and low(er) altitude sites in Colorado; (3) introduce scavenger succession and progression at high-altitude sites in Park County and Gilpin county, Colorado; and (4) introduce upcoming high-altitude research plans, funded by the National Institute of Justice Graduate Research Fellowship Program.