

ABSTRACTS

The gut microbiome consists of the population of microbes that live in an individual's gastrointestinal tract. In primate species, individuals who disperse from their natal group may shape their adult stable microbiome through physical contact, shared environments, and shared diet with their new group members. However, it is possible that individuals retain the dominant microbiome composition that they developed as an infant in their natal group even after joining their new group. The combination of social group influence and maternal vertical transmission may provide insight into the similarity between group members' gut microbiome composition.

To determine if the natal group microbiome is retained after dispersal in adult individuals, we tested whether related *Eulemur rubriventer* (red-bellied lemurs) individuals living in different social groups overlap in microbe composition, and if areas of overlap are distinct compared with unrelated members of their current social group, and related individuals in the current social group. Using census and genetic data, we determined the social group membership and relatedness of 15 individuals. Quantitative real-time PCR and Microbial 16S ribosomal RNA gene sequencing indicated that diversity, richness, and composition of *E. rubriventer* microbiomes varied mostly with host social group, with social group accounting for 25% of the variation in composition of *E. rubriventer* microbiomes and kinship accounting for just 2.4% of variability in gut microbiome diversity. The gut microbiome was not shown to be a function of host genetic kinship, prompting reconsideration of the importance of the initial vertical transmission of microbes from mother to infant.

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Human interaction and mobility among Copper Age mega-sites enclosures in Iberia through strontium isotope analyses

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This paper uses recently acquired strontium isotope (⁸⁷Sr / ⁸⁶Sr) data from the Copper Age sites of Valencina, La Pijotilla and Zambujal in southern Iberia in combination with AMS radiocarbon dates and new bioarchaeological information to reconstruct human mobility patterns among these communities. The Copper Age in this region is characterized by increasing social complexity, population aggregations and long distance exchange of exotic goods. While

these social transformations suggest increased human mobility, little is known about the actual movement of individuals across the landscape. Results showed that the amount of individuals with a non-local signature at those Copper Age mega-sites (Díaz-Zorita Bonilla, 2017; Waterman, 2015) are significantly higher than to other smaller megalithic sites. Therefore, mega-sites are special places for exchange where population aggregation and human interactions can be detected based on strontium isotope analysis. The results of this study point to clear evidence of human mobility and provide a new interpretation of the social and economic dynamics of these 3rd millennium BC communities.

Forensic Science, Death, and the Public: Towards Effective and Compassionate Communication

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Over the past four decades, anthropologists have increasingly been involved in death investigations, often including those that are particularly tragic due to mass disasters or human rights violations. Pioneers such as the late Clyde Snow set the example for involving family members as part of the investigation process. Since this precedent, familial engagement has become best practice, emphasizing a holistic approach to death investigation. From 1879 to 1918, Carlisle Indian Industrial School was the first location of many off-reservation Indian residential schools in the United States. Over 10,000 children from multiple tribes attended these schools. The historical record indicates 180 tribal members died during their tenure at Carlisle. The United States Army decided to enter government-to-government relations to exhumate members of the Northern Arapaho tribe who died and were buried at Carlisle. We will discuss engagement with the families during exhumation, analysis, and return proceedings carried out under the auspices of the Army National Military Cemeteries, US Army Garrison, Carlisle Barracks. The entire team was cognizant of the importance of the model being set, given the novelty of the proceedings and stakes involved. As a result, we followed best practices first set by Dr. Snow that continue: team leader continuous communication with a family liaison coupled with individual family interaction with the forensic anthropologists. Key to our mutual success was trust-building that began well before exhumation and analysis. Here we discuss our employed strategies and overall approach towards resolution and some semblance of closure for the families and descendants.

What's for dinner? Diurnal variation in wild Bornean orangutan food and nutrient choices

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Previous observational research on primate feeding ecology has demonstrated that some primates consume fruit in the morning and leaves in the afternoon. However, diurnal patterning of feeding bouts has not been demonstrated for many of the apes, nor for relatively solitary primates. Furthermore, whether this has nutritional consequences is unclear. Orangutans are largely frugivorous omnivores that also incorporate leaves, bark, pith, and insects in their diet. As primarily solitary animals, their foraging and food choices are not restricted by group size and group decisions – thus they provide an excellent species with which to examine individual ape foraging choices. In accord with previous research, we hypothesized that orangutans would select energy rich and easy to digest foods (i.e., fruit) in the morning, then move to leaves and more fibrous food sources later in the day in order to allow more digestion time, and possibly to gain necessary macronutrients at the optimal time. We examined whether orangutans exhibited diurnal patterning of feeding bouts using 51 full day follows of wild Bornean orangutans (*Pongo pygmaeus wurmbii*) occurring May 2015 – January 2016 at Gunung Palung National Park, West Kalimantan, Indonesia. While there is a statistically significant difference in food types eaten at different times of day ($\chi^2 = 76.3$, $p = 0.03$), this difference is driven by increased consumption of leaves and pith in the afternoon hours, while fruit is consistently consumed throughout the day. We discuss this in the contexts of optimal nutrient selection and the Geometric Framework of Nutrition.

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The impacts of Cyclone Enawo and anthropogenic disturbances on the habitat of northern sportive lemurs (*Lepilemur septentrionalis*) in northern Madagascar

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Madagascar is subject to frequent cyclones, which are thought to have greatly influenced the evolutionary history of Malagasy flora and fauna.