a conflict site is likely a function of motivation – i.e., whether the group has had an opportunity to consume local resources – and not necessarily an indication of competitive inferiority.

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Leprosy in Medieval Denmark: a multi-tissue and multi-isotopic approach to investigate life histories

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Leprosy is a chronic infectious disease with severe debilitating and crippling implications. During the medieval period, numerous leprosy hospitals were established in Europe. Even though historians still debate the true aim of leprosy hospitals (e.g. isolation vs. nursing), their establishment during a period when the notion of contagion was not fully understood provides key insights into medieval attitudes towards diseases and social relations. Combining archaeology, historical sources, biological anthropology and isotopic analysis ($\delta^{13}C$, $\delta^{15}N$, $\delta^{34}S$, $^{87}Sr/^{86}Sr$, $\delta^{13}C_{AminoAcids}$), we investigate how leprosy affected both institutionalized individuals and Danish medieval society as a whole. We follow a multi-tissue and multi-isotopic approach to generate data on individual life histories, which is essential when dealing with the issue of stigma attached to disease. We further explore the organizational structure of these institutions (Næstved and Odense; 13th – 16th c.) by investigating dietary differentiations with local, contemporary communities and between sex, age and social groups. Isotope analyses on bulk collagen and amino acids indicate that the leprosy patients changed their diet during the last few years of life, which is compatible with institutionalization. Furthermore, sulfur and strontium isotope analyses found that the leprosy patients were local to the regions of the leprosy hospitals. This combination of different threads of evidence weaves together a clearer and more detailed understanding of the social implications of leprosy in medieval Denmark.

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Habituation, Avoidance Strategies, and Social Learning in Wild Bornean Orangutans in Gunung Palung National Park, Indonesia

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Habituation, or the process of an animal becoming comfortable with human observers, is an essential part of wild primate observational studies. Despite the importance of this process, questions remain as to what counts as habituated for a particular species, how individuals and species react to humans, and how age-sex classes differ in these responses. To address these questions, we analyzed data from over 25 years of research on wild Bornean orangutans from Gunung Palung National Park, Indonesia, drawing from 8,383 follows and 82,413 hours of observation. We categorized the degree of agitation with humans by totaling the number of alarm vocalizations, giving each follow a score of 1-10. We then looked at behavioral measures using a GLMM to control for individual and food availability. This revealed that individuals with the highest vocalization scores spent a greater percentage of the day traveling (b=40.5, $p < 0.0001$), stayed higher in the canopy (b=16, $p < 0.0001$) and spent less time eating (b=205, $p < 0.0001$) than did animals that did not vocalize. Our analysis also revealed a less common, but frequently observed, opposing response to humans, which was to hide, often inside of a day nest, and emit no vocalizations. Individual orangutans were observed to switch between these two 'strategies' to evade human observers. We discuss the implications of this behavior as well as present evidence that the reaction of other orangutans mediates the response of focal individuals to humans, suggesting the importance of social learning in this behavior.

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Extrinsic and intrinsic effects on nutritional strategy in redtail monkeys (*Cercopithecus ascanius*)

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An animal's nutritional requirements and intake fluctuate by extrinsic spatiotemporal variation in food availability and food nutritional composition as well as by intrinsic variables like reproductive status. We examined the effects of fruit availability and reproductive status on nutrition of female redtail monkeys (*Cercopithecus ascanius*) in three study groups in Kibale National Park, Uganda. When ripe fruit availability was low, daily intake of available protein ($b = 1.01$, $t(112) = 3.12$, $p = 0.002$) and fiber ($b = 1.09$, $t(112) = 3.40$, $p < 0.001$) was higher. Redtail monkeys gained protein from young leaves, insects, and some unripe fruits, leading to increased protein intake in low ripe fruit periods. When availability of fruit of any ripeness (ripe and unripe) was low, daily intake decreased for protein ($b = -1.16$, $t(112) = -4.05$, $p < 0.001$) and fat ($b = -0.82$, $t(112) = -2.38$, $p = 0.02$), explained by redtails using some unripe fruits as protein and fat sources. Reproductive status did not affect daily intake of metabolizable energy, nonprotein energy, fiber, nonstructural carbohydrates or fat, indicating that mobilizing fat stores could provide energy for reproduction. How primates alter their nutritional strategy when faced with dynamic food availability and physiological states gives us insight into how animals interact with their environment to reach nutritional goals enabling survival and reproduction.

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Sex differences in bilateral asymmetry of the clavicle and humerus in medieval Giecz, Poland

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Bilateral asymmetry of skeletal elements of the upper extremities provides an important record of functional adaptation and workload in present and past populations. Variation in skeletal asymmetry is partially attributed to effects of mechanical loading due to dominant limb use associated with "handedness". Furthermore, asymmetry differences between males and females can reveal a sexual division of labor. The objective of this research was to evaluate sex differences in bilateral asymmetry of the clavicle and humerus in a medieval Polish population.