

FROM HAIR TO BEHAVIOUR: ANALYSES OF SHED HAIRS WITH MULTIPLE GENETIC MARKERS PROVIDE NEW INSIGHTS INTO GROUND-NESTING BY WILD CHIMPANZEES

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We used a genetic approach to study the occurrence of a rare nest-building behaviour, i.e. ground-nesting, in unhabituated chimpanzees (*Pan troglodytes verus*) in the Seringbara region of the Nimba Mountains, Guinea. Previous research showed that ground-nesting in Seringbara was not determined by environmental factors. In this study, we investigated if ground-nesting was sex-biased and whether it was a group-level behavioural pattern occurring in one or two communities. Furthermore, we addressed a possible mate-guarding function of ground-nesting by sexing hairs from ground nests (N=46) and from tree nests (N=7) found in close proximity to ground nests. Microsatellite analysis is extremely difficult when using low quantity and low quality DNA from single shed hairs. We therefore used genetic markers to analyse sequence variation in the mtDNA control region, i.e. hypervariable region 1 (HV1) and 2 (HV2), in combination with sex-specific markers (AMG, SRY) in order to estimate the number of ground-nesting individuals. Hair samples were collected from fresh and recent nests over 19 months (2006-2008). Our results showed that ground-nesting was a strongly male-biased behaviour. Ground-nesting was also wide-spread. We identified at least 12 different ground-nesting individuals residing in two communities. Based upon preliminary results on ground and tree nest associations, the mate-guarding hypothesis was not supported. Instead nest pairs were built by individuals of the same sex and often the same mtDNA haplotypes, suggesting that nest pairs were made by closely-related, or possibly the same, individuals. Our results further showed that HV2 sequences differentiated individuals with higher resolution than HV1 sequences.

Keywords: chimpanzee, nest-building, DNA analysis, non-invasive sampling