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Chimpanzee food calls: the effects of socio-ecological context on structure and production

Many animals produce food calls while foraging that are observed to attract conspecifics. Our closest living relative, the chimpanzee, similarly produces food calls solely in a feeding context. Previous research has shown these calls are functionally referential in captivity but evidence in wild populations is lacking. We investigated whether food species and quantity influence acoustic variation of food calls in a group of wild chimpanzees living in the Taï forest, Côte d'Ivoire. Using over 750 hours of observations from focal follows of adult males and females, we analyzed 379 food calls produced for five different food species. On average, food calls produced for one particular species were of a higher pitch than all others. Moreover, within this species, acoustic variation was driven by tree size whereby larger trees elicited food calls with lower dominant and peak frequencies. Our data suggest that chimpanzees can subtly modify food call structure with respect to tree size for a putatively high valued fruit species. Additionally, on-going analyses suggest that food call production is sensitive to not only who is present with the signaler but also who may be nearby when arriving to a food patch. Taken together, our results illustrate that both social and ecological variables had significant effects on chimpanzee communication whereby ecological context influenced acoustic variation of calls and social context was important in governing call production.