Abstracts

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Stress and Play Fluctuation in Wild *Lemur catta*

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Key Words: Ring-tailed lemurs · Anxiety · Indicator · Scratching · Playful activity · Madagascar

Strepsirhines have been neglected in the study of animal play. Yet, data from a wide array of primate taxa are needed to understand role, functions and social determinants of play. We investigated play behaviour in wild ring-tailed lemurs *(Lemur catta)* at the Berenty Reserve (Madagascar) where two other sympatric lemur species, and potential resource competitors, live *(Propithecus verreauxi* and *Eulemur fulvus)*. We followed two groups of ring-tailed lemurs (9 and 16 individuals) from November 2006 to February 2007. We evaluated play fluctuation during possible stressful conditions, such as the presence of neighbour groups of conspecifics (C), and the presence of groups of other lemur species (NC). We considered the absence of any other group (A) as the control condition. We first verified whether the presence of other groups did increase stress levels in the study groups. Stress levels were measured via scratching, which previous studies have shown to be a reliable indicator of anxiety in human and non-human primates. Scratching rates in the study animals were higher in the presence of other groups (C+NC) compared to when other groups were absent (A). Overall play rates were highest when other groups were nearby. In presence of NC groups, play rates decreased as NC groups approached the study groups. Instead, when only C groups were in sight, play rates increased as the distance between the study groups and other conspecifics decreased. Moreover, play was highest during extra-group aggressive encounters (involving C groups) whereas it was suppressed during intra-group fights. Our results suggest that play fluctuates in response to different stressful conditions and may be used as a mechanism to cope with anxiety.

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What Are We Singing for? Evidences of Context Variation in the Song of Wild Indris

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Key Words: *Indri indri* · Song · Context variation

Among primates, loud calls can serve for spacing neighbouring groups, promoting spatial cohesion among individuals or attracting conspecifics. Each indri *(Indri indri)* in a family group produces impressive howling cries within a complex sequence of *utterances*, usually called 'the song of the indri'. We aimed to investigate whether the song was used only for territorial advertisement or given in other contexts. We observed that the singing activity took place in three different situations: (a) advertisement of 'self', so as to warn conspecifics of presence; (b) spatial cohesion of group members, so as to facilitate re-aggregation; (c) active defence when indri groups approach each other at a common territorial border. When indris are not in visual contact, the song promotes approach between individuals, which subsequently moved for 32.05 m (sd = 43.37 m, n = 28). After an advertising song, average displacement was 1.52 m (sd = 0.50 m, n = 27; ANOVA, n = 55; F = 24.625; $p < 0.001$). Songs given in different contexts ($N_{individuals} = 31$, $N_{groups} = 11$) differed in timing and structure (*number of calls*: t-test, n = 59, t = 3.752, $p < 0.001$), and duration of the individual song (t-test, n = 59, t = 2.918, p = 0.005). Statistical analyses supported the existence of context-specific acoustic variants of the indris' song.

Response Latency and Self-Directed Behaviours by Capuchin Monkeys in an Intertemporal Choice Task

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Key Words: Scratching · Motor impulsivity · Inhibition · *Cebus apella*

Several studies have investigated response latency in different tasks, showing that more complex choices usually require more time than less complex ones. In both humans and non-human primates, self-directed behaviours, such as scratching, are related to frustration and anxiety. A few studies have demonstrated that in great apes the occurrence of self-directed behaviours during cognitive tasks increases with task difficulty. Here, we investigated how response latency, scratching and other potentially stress-related behaviours varied in nine capuchins faced with an intertemporal choice task, an inhibition task where subjects faced choices between a small immediate option and a large delayed option. We scored: (i) response latency, (ii) scratching, alarm calls, and pointing at the chosen/not chosen option (a behaviour indicating motor impulsivity) during the delay associated with the large option, and (iii) scratching and alarm calls during the intertrial interval. Overall, there was a significant decrease in response latency across sessions. Moreover, in the course of the study, capuchins adjusted their behaviour to the hard task requirement (waiting for a desired reward), becoming less stressed