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Primates: Biodiversity and Conservation

### Oral Communications

#### Stress and Play Fluctuation in Wild *Lemur catta*

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

Strepsirrhines 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.

during the delay. In fact, (i) scratching decreased both within each session and across sessions, and (ii) pointing at the chosen/not chosen option decreased across sessions. In contrast, during the intertrial interval alarm calls increased across sessions. Thus, experience helps capuchins to cope with productive delays (i.e., instrumental to obtaining a reward), but has a negative impact on their tolerance for meaningless delays (i.e., not related to the specific task, as in the intertrial interval).

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## **Non-Human Primates in the European Directive 2010/63**

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*Key Words:* Animal experimentation · Captive studies · Ethics of research · European legislation · Great apes · Non-human primates

On October the 20th, the Official Journal of the European Union published the new European Directive on the protection of animals used in scientific procedures. The new norms, known from now on as Directive 2010/63, represent a step forward towards a more ethically-sound use of animals in scientific research, although some of the articles are still ambiguous and not very clear in their effectiveness. Non-human primates are the focus of especially dedicated passages of the new Directive. In this presentation the different articles covering the use of non-human primates will be illustrated. In general, although the use of non-human primates in research appears to be still solidly justified, the new norms raise the level of justification and attention required for their use.

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## **Posters**

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### **Primates as Leopards' Prey in Western Soutpansberg, South Africa**

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*Key Words:* Predation · *Chlorocebus pygerythrus* · *Cercopithecus mitis* · *Papio ursinus* · Landscapes of fear · Camera traps

Predation has been considered a very important selective force in the evolution of primate behaviour. While the advantages of group living in intergroup competition are well documented in several species, few studies have established the intensity of predation on primates. Our studies aimed to reduce this lack of information by investigating leopard (*Panthera pardus*) predation on the primate species living in the Western Soutpansberg, South Africa. This research was carried out using traditional scat analysis, to determine the occurrence of primates in the diet of leopards, and camera trapping, to evaluate availability of primate species in the area and leopard's selectivity for those species. We also analyzed the correlation between leopard activ-

ity patterns and those of the primates. The study was based at Lajuma Research Centre in an area of 23.12 km<sup>2</sup>. Data collection covered a 252-day-period between October 2008 and July 2009. We positioned 20 camera traps, and their layout covered all the different habitats: mist-belt forest, thicket, savannah and grassland biomes. Analysis of 100 scats showed remains of 103 prey belonging to 16 species. Primate species represented 29.12% of the leopards' diet. The Jacobs' index shows a positive selection for vervet monkeys (*Chlorocebus pygerythrus*;  $D = 0.81$ ) and Sykes' monkeys (*Cercopithecus mitis*;  $D = 0.92$ ) and a negative selection for chacma baboons (*Papio ursinus*;  $D = -0.90$ ). Leopards were primarily active during twilight and this allowed the hunting of vervet monkeys while they were still foraging on the ground, with fewer chances to detect the predator. Our results showed that the leopard is the main predator of vervet monkeys in Southern Africa, in both forested and open habitats. The leopard hunting pressure on chacma baboon in Soutpansberg is slightly bigger than in the savannah, but in agreement with previous studies.

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### **A Community-Based Project in the Maromizaha Forest (Madagascar)**

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*Key Words:* Malagasy biodiversity · Maromizaha forest · Conservation · Lemurs

Malagasy biodiversity is dramatically declining due to the ongoing deforestation. The primary forest of Maromizaha (150 km east of Antananarivo and only 20 km from the National Park of Andasibé-Mantadia) extends from 800 to 1200 m.a.s.l. and harbours a unique community of highland and lowland species: 13 lemur species, 77 bird species, 60 amphibian and 20 reptilian species have been monitored so far. The lemurs include: *Indri indri*, *Propithecus diadema diadema*, *Avahi laniger*, *Varecia variegata editorum*, *Eulemur rubriventer*, *Eulemur fulvus*, *Haplemur griseus*, *Cheirogaleus major*, *Microcebus rufus*, *Allocebus trichotis*, *Lemilemur microdon*. Future surveys will investigate the presence of *Prolemur simus*, recently rediscovered in the region, and *Daubentonia madagascariensis*, as well as the most impressive carnivore, the fossa (*Cryptoprocta ferox*). Maromizaha forest was gazetted as a protected area in 2001 and GERP (Groupe d'Etude et Recherche sur les Primates de Madagascar) was designated as the managing authority. As it is well known that conservation requires the cooperation of a wide range of institutions and individuals, it is evident that a key role in conservation is played by the local population, whose sustainable economic development is directly proportional to the increase of probability in species survival. The project's activities include education of Malagasy students and communities, training of local research guides for biodiversity monitoring, training of guides for encouraging tourist visits, development of family-based agriculture and implementation of alternative sources of energy. In this way, conservation of Maromizaha's extraordinary fauna and flora will be integrated with the reduction of poverty in the area.

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