

## Poster Sessions – Rhinos

### Stimulation of Territorial and Mating Behavior by Fecal Samples. A Comparative Study on Behavior of Captive and Free-Living White Rhinoceros

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Urine and feces are being used for territorial marking in white rhinoceros. It is supposed that they carry information, which could indicate e.g. the presence of other individuals as well as their status and age.

White rhinos don't breed in captivity if they are kept in pairs. They are therefore being shifted between different enclosures. If it could be shown that excrements carry information, the presence of other animals could be simulating simply by olfactory markings. In the present study we analyzed territorial marking behavior of a free living population and explored whether olfactory stimuli could induce territorial and courtship behavior in captivity, by simulating the presence of other animals.

The zoo study was carried out with a group of five white rhinos (1,4) in the zoo of Erfurt, Germany. Fecal samples of males from different locations and age classes were introduced to the male and females and the changes in behavior and cycling activity were analyzed. The field study was conducted on a free living population in South Africa. Marking behavior was analyzed by following the track of individual males. The position of dung and urine markings was mapped with a GPS.

The results showed that males were more olfactorily interested than females. The introduction of feces from males (age 6-9) increased marking behavior of the male and social interactions between male and females. However 20-oxo-pregnane concentrations of the one cycling female did not change. In the free-living population males had no fixed border, their territories shifted in dependence on the presence of females. Urine was used to mark the territory border, whereas feces were found all over the area. This suggests that feces are more important for transferring information to females which could be confirmed by zoo experiments. Therefore we propose shifting feces between different enclosures rather than rhinos as an alternative management strategy.

### A Program of Managed Breeding for the Sumatran Rhinoceros at the Sumatran Rhino Sanctuary, Way Kambas National Park, Indonesia

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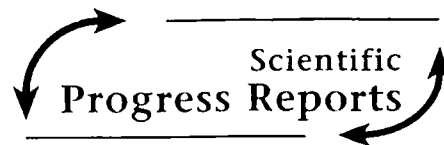
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The Sumatran rhinoceros is the most critically endangered of the rhinoceros species with less than 300 individuals estimated to remain in the wild, a decline of more than 50% of the total alive 10 years ago. Furthermore the international effort to establish a managed breeding population for future re-introductions, has had limited success. Since its start in 1985 almost three-quarters of the animals have died and pairing and breeding has been problematic, with only one advanced pregnancy to date (Cincinnati, USA). As part of an effort to improve the chances for propagation by providing a more natural environment and social structure, the Way Kambas Sumatran Rhino Sanctuary (SRS) was founded in 1995. The sanctuary comprises 100 ha of mature secondary rain forest, located within the 125,000 ha Way Kambas National Park, Sumatra, Indonesia. The SRS provides a minimum of 20 Ha of native habitat for each individual and allows mixing and separation of animals as required. The founder animals, 2 females from Indonesian zoos and a male from the UK, arrived in 1998. Recently one of the females, an old and un-reproductive animal, died. The remaining pair is in prime condition and has breeding potential. Animals are monitored continuously during daylight hours, and full-time during the breeding periods, and extensive data on activity patterns, feeding and reproductive behaviour have been collected over the past 3 years. Morphological parameters and faecal and urinary hormone excretion patterns have been used to determine reproductive status of the females. For the latter purposes, a hormone assay laboratory has recently been established at the Centre for Life Sciences Study, Bogor Agricultural University. Initial attempts at non-invasive semen collection have also been carried out. This poster presents the results of 3 years of research and briefly discusses the contribution of the SRS to the conservation efforts for the Sumatran rhino.



Harald M. Schwammer  
Thomas J. Foose  
Michael Fouraker  
Deborah Olson



## **Recent Research on Elephants and Rhinos**

Abstracts of the  
International Elephant  
and Rhino Research Symposium,  
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