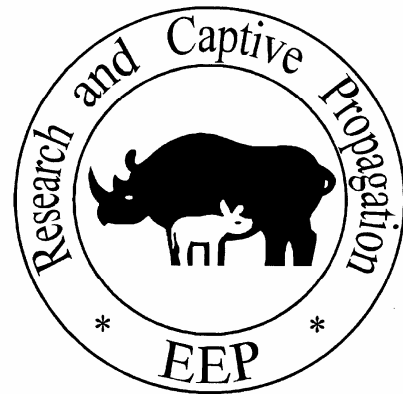


Research Committee Newsletter

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only used by one elephant. Individual differences were found in the produced Growls and clues on this also in the Trumpets. Different call types were used at different states of arousal.

AFFECT OF SLEEPING ARRANGEMENTS ON MALE WHITE RHINO BEHAVIOR AND HORMONE LEVELS AT THE TISCH FAMILY ZOOLOGICAL GARDENS IN JERUSALEM (THE JERUSALEM ZOO).

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Keeping all-male groups in zoos often eases the problem of surplus males in captive breeding programs of polygynous species. However, the welfare of the males in these species might be compromised when kept in a social structure that is not always natural. The Jerusalem Zoo holds two male southern white rhinos (*Ceratotherium simum simum*), in which males are considered solitary. Preliminary observations at the Zoo suggested that the males' sleeping arrangements, in adjacent compartments in the night house, may stress them because they cannot avoid each other's scent or voice, two major components of rhino communication. Hence, we tested the affect of the sleeping arrangements on the males' welfare by allowing each male to sleep outdoors for a period of about three weeks while his exhibit mate sleeps indoors. A similar period, when both males slept indoors, served as a control. We assessed welfare by measuring corticosterone (stress) and testosterone (sex) hormone levels in the feces, and by conducting behavioral observations. The results showed normal and stable corticosterone levels, except for a brief high peak for the dominant male when the two were re-united for the nights. In contrast, testosterone levels varied significantly between manipulations, dropping to non-breeding levels when both males slept indoors. This change corresponded with behavioral changes that suggested that the males were less relaxed. Also, relative changes in corticosterone levels suggest that the males treat the house as the most important part of the territory or even as an independent one.

INVESTIGATION ON THE SOCIAL, REPRODUCTIVE AND PLAYFUL BEHAVIOUR OF CAPTIVE WHITE RHINOCEROSES (*CERATOTHERIUM SIMUM COTTONI*)

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Social, reproductive and playful behaviour were observed in the group of northern white rhinoceroses (bull SUNI and cows NESÁŘÍ, NABIRÉ, NASI, NÁJIN and her daughter FATU) in the Zoological garden Dvůr Králové in the Czech Republic from July to November 2005. A part of results of this observation was presented in the bachelor thesis; the next part of it will be presented in prepared diploma thesis.

In the ZOO Dvůr Králové, the bull SAÚT, which was with the herd of cows in previous seven years, was exchanged for SUNI in June 2005. The reason for this was that although a regular mating between SAÚT and NÁJIN occurred from the year 2001, the cow did not come to pregnancy. Expected results of this exchange have not come, because no mating was noticed. During the observation period, the bull was sexually interested only once in NÁJIN, NESÁŘÍ and NASI. Nevertheless, the oestrous cycle was probably activated in five years old FATU (faecal samples for a hormone level evaluation were not regularly collected at that time). In days of sexual interest of the bull in her (6-8 July, 22-25 July, 18 September, 6-7 October), FATU stayed in close proximity of her mother, which threatened the bull.

Behaviour of animals was strongly influenced by accumulation of the animals on a limited area of the enclosure. Social behaviour was registered in both types – cohesive and agonistic. From 17 predetermined types of cohesive behaviour as described by Mikulica (1991), 15 were noted. Between cows in stabile bond (dyads or sometimes also triads), frequent cohesive manifestations and only few agonistic displays can be observed. A close relationship was recorded in pairs of cows NABIRÉ – NASI and NÁJIN – FATU. NESÁŘÍ did not form a stabile bond with any cows and she gave only few cohesive manifestations to the other females.

The agonistic behaviour was observed in two types: subdued aggressive behaviour and defensive behaviour – active defence. From 12 predetermined types as described by Kuneš & Bičík (2001-2002), 11 were recorded. Bull SUNI was a common target of agonistic behaviour of cows, but in most instances, he



retreated after a conflict. A retreat of a dominant bull after a conflict with cow(s) or submissive bulls was also described in the wild (Owen-Smith 1973). The most frequent agonistic display of cows towards a bull was defensive behaviour. While this behaviour induced a retreat of the bull, it could be interpreted as a submissive gesture. Behaviour of a bull corresponds to high ranked, dominant animal.

The animals' activity depends on their age and sex. Young animals were more active than the older ones, females in stable bond had similar activity budgets and the biggest part of walking from total activity was registered in the bull. During the observation, animals have spent less than 25% of time with feeding; they dedicated the biggest percentage of time to lying (27-56%). Free-range white rhinoceroses of all age/sex classes devote an average of 48.8% of the daytime hours to feeding (Owen-Smith 1973).

A majority of manifestations of playful behaviour was registered in a young female FATU. The most frequent playful behaviour was horn wrestling, usually between a cow and bull, who commonly initiated this behaviour. Play horn wrestling is also ordinary between adolescents or between bull and adolescent. In this case, the stimulation generally comes from an adolescent, but a bull prolongs this (Meister 1997). At the beginning of my observation, in July, a frequent initiation of play horn wrestling with bull SUNI by adolescent female FATU could be recorded. An intensity of play horn wrestling between them was going down during August and at that time, FATU started to use more often a defensive threat towards bull, above all „Snarl” and „Snort”. This behaviour could have been related to a start of oestrus in her in days 6-8 July and 22-25 July, when the bull was sexually interested in her.

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SOCIAL RELATIONSHIPS AND BEHAVIOR IN A NEW ASSEMBLY GROUP OF CHIMPANZEES IN OSNABRÜCK ZOO - MONITORING SOCIAL BEHAVIOURAL AND NON-INVASIVE RECORDING OF STRESS LEVELS USING FAECAL GLUCOCORTICOIDS

FRAUKE HOLLAND- OSNABRÜCK ZOO, DIPLOMAPROJECT

Since many years chimpanzees *Pan troglodytes* have been held in Zoos all over the world. Chimpanzees are very social animals and for their well-being it is very important that they have to live in a group with other chimpanzees, with similar structure to the wild.

In this study the social relationships between chimpanzees after changing of the group composition were examined. It was assumed that changing the group composition caused “stress” to chimpanzees, and that an increase in stress is accompanied by an increase in cortisol concentration in faeces of the group-members.

In the end of 2001 the chimpanzee-group of the Osnabrück zoo consisted of five members: one adult male, two subadult males and two adult females. To multiply social interactions two external females were introduced into the pre-existing group. The process of integration was examined in a separate study (D. TERRUHN; 2003). These observation had shown that there was no stabilization in dominance between the group-members during the following half year.

Reason for the permanent “trouble” in the group was supposed to be a subadult male. After his departure the period of observing for this study started in october 2003.

For comparing results of behaviour and endocrine data with a stable social group, the chimpanzees of Krefeld zoo were examined. This Krefeld group stayed together for a long time so we assumed a stable social structure between the group-members, and according to this lower cortisol levels of these chimpanzees were expected.