

## **Social behaviour of southern white rhinoceros (*Ceratotherium simum simum*) in game reserves in South Africa**

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In southern Africa, an increasing number of white rhinos are kept in fenced reserves and farms. The populations are often small and the sex and age compositions are skewed. Experiences in the past have shown that these small populations do not breed very successfully. One of the reasons might be a high density of animals in general or the high density of animals of the same sex or age class leading to an increase in aggression, especially when they are aggregating at feeding, drinking or resting places. It is important to monitor the social behaviour of animals in order to make sound management decisions. We studied the social behaviour of two white rhino populations in a private reserve (Limpopo Province, n = 13) and in the Lichtenburg biodiversity conservation centre (North West Province, n = 8). The study was carried out from May to August 2008. Behavioural observations were conducted in the morning and late afternoon, when the rhinos were expected to be most active. The observation points were located at waterholes and winter feeding places (private reserve) and at favourite grazing and resting areas of rhinos (Lichtenburg reserve). The behaviour of the rhinos was monitored using focal animal sampling (78 hours of observation). During the observations, the cohesive and agonistic (defensive and aggressive) behaviour was recorded. Direct sociopositive contacts with the head or horn were seldom observed between the animals. No cohesive behaviour was directed from the cows towards the bulls. The cows directed significantly more agonistic displays towards the bulls than vice versa ( $\chi^2$  test, private reserve:  $p < 0.0001$ , Lichtenburg reserve:  $p < 0.0001$ ). Agonistic interactions between the rhinos under competitive conditions at feeding places in the private reserve were much more frequent than between the animals in Lichtenburg reserve mainly when directed from a cow towards a bull or towards another cow. It is therefore very important to establish a sufficient number of feeding places in the reserves and to assure their good dispersion so that the rhinos would not aggregate in some parts of reserves. An increased aggression in rhinos when meeting in these areas might decrease their reproductive success. This is in accordance with earlier studies from zoo rhinos including cortisol measurements. The support by Pretoria Zoo, Lichtenburg center, the private game reserve and their staff in granting organization, accommodation and information is gratefully acknowledged.