

109 REPRODUCTIVE PERFORMANCE PARAMETERS IN A LARGE HERD OF CONFINED FREE-ROAMING WHITE RHINOCEROSSES (*CERATOTHERIUM SIMUM*)

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Abstract

During the last decade, the population of wild white rhinoceroses has been in steady decline, mainly because of increased poaching incidents and habitat loss. Therefore, more data are necessary on reproduction of this endangered species in order to improve captive breeding, which is at present not very successful. Currently, ~20,000 Southern white rhinoceroses are remaining of which the majority are privately owned. The aim of this study was to create reference values of several reproductive parameters for future white rhinoceros breeding. In previous studies, only low numbers of animals have been observed, often in captive settings. In this study performed between 2008 and 2016, reproductive performance was analysed in 1300 animals kept in a geographically identical, confined free-roaming environment. Analyses were performed in R (R Development Core Team, 2008) using the lme4 and fixed package to model the number of animals born (family = Poisson) and sex ratio (family = binomial). Females had a median age of 83.2 months at first calving (interquartile range: 72.9–110.7) and intercalving intervals of 29.2 (interquartile range: 24.6–34.8) months. Fertility records were excellent with 38% adult females calving per year when compared to previous research, in which first reproduction occurred between 78 and 138 months of age with an intercalving period of 3 years average. A clear seasonal calving pattern was seen with a significant increase of calvings during December–April when compared to April–December. In contrast to the Trivers-Willard hypothesis, our results did not show any significant skewed progeny sex ratios. Weather observations showed no significant influence of rain or season on sex ratios of the calves. Furthermore, translocations of animals did not seem to interfere with reproductive success when looking at intercalving periods or age at first calving. In the free roaming environment of over 10,000 ha, this captive population showed an average annual population growth (%) of 18 ± 0.07 (minimum 5 to maximum 26). As such, comparable breeding management systems can increase population numbers and contribute to increase dwindling population numbers of the wild white rhinoceros. This is the first study to describe reproductive performances in the white rhinoceros at such large scale, indicating that confined free-roaming populations can be used for captive breeding of white rhinoceros to contribute to white rhinoceros conservation.