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Assessing the re-introduction of a black rhino (*Diceros bicornis*) starter group in Namibia

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The black rhinoceros (*Diceros bicornis*) used to be the most widespread rhino species in the world throughout the first half of the 20th century. Its distribution range, once comprising most of the Sub-Saharan countries, was reduced to a small number of refuges during the early 21st century. Today, most of the remaining black rhino subpopulations are scattered across a few different and often isolated areas in Namibia and South Africa. The black rhino holds a particular important function for conservation strategies due to its unique status as an umbrella species.
In this study, we investigated a starter group of four re- introduced black rhinos (one male and three females). The animals were released into an 88.7 km^2 privately owned and fenced in reserve one year prior to the beginning of our investigation. The reserve is located at the southern border of the Etosha National Park in Namibia. We indirectly observed the rhinos by using camera traps attached to the seven waterholes of the study area. This set up was complemented by a) VHF radio telemetry in order to gain more detailed information on the spatial and temporal behaviour and to conduct direct observations and b) vegetation surveys to investigate the preferred habitat types. Our main objective was to assess the re-introduction process in this specific case by investigating the acclimatisation progress to the new environment. Four months of field work (March to June 2012) revealed the suitability of the area (size, number and distribution of waterholes, vegetation types, land use and the occurrence of other large mammals in this area), as well as the starter group's composition. All rhinos showed typical, species-specific behaviour (e. g. movements, home ranges, social and sexual behaviour) and no signs of fighting or distress. As expected, rhino image frequency at the waterholes increased during our study as the semi-arid environment became drier. Water uptake exclusively occurred during the night hours. The rhino group is characterised by a rather dynamic social structure: temporary dyadic (two- animal) associations between the male rhino and different females of the group could be observed over the course of the study. Furthermore, the data is revealing that all of the rhinos have a high affinity towards a certain habitat type at the study area. In conclusion, we can assume that this specific re-introduction was successful and that the rhinos already acclimatised one year post-release. We are confident that our study can serve as a suitable approach for future rhino re-introductions.