

(67) CALF RECRUITMENT AND SURVIVAL IN A POPULATION OF BLACK RHINOCEROS, *DICEROS BICORNIS*, IN ZIMBABWE FOLLOWING IMMOBILIZATION AND DEHORNING.

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The long-term effects of chemical immobilization and horn removal in the black rhinoceros, *Diceros bicornis*, have been debated for several years. Recent publications suggest that dehorned black rhinoceros females in Namibia are unable to defend their calves against predators and that calf survival is so low that dehorning should not be considered. During the period 1991 – 1994, 586 immobilizations of both white, *Ceratotherium simum* (n=179) and black (n=407) rhinos were carried out in Zimbabwe, of which more than 400 animals were dehorned. A dehorning operation in the Sinamatella/Deka Safari Area in northwestern Zimbabwe in 1992 was conducted on a discrete population of black rhinos in the Sinamatella Intensive Protection Zone (IPZ). The area has healthy populations of lion, *Panthera leo* and spotted hyena, *Crocuta crocuta*. In 1994, a follow-up operation conducted to evaluate the effects of dehorning this population also allowed the evaluation of calf survival and recruitment. Of 59 black rhinoceros immobilized in 1992, 15 cow/calf pairs were recorded. Of these, 7 calves were estimated to be less than 6 months old and 8 were estimated to be older than 6 months when their mothers were dehorned. Of the calves less than 6 months old, 5 were re-located in 1994, representing a 71% survival rate. One cow/calf combination remained unaccounted for in 1994 and several poaching incidents in the area had been recorded between 1992 and 1994. At least one calf was poached in the same area. Excluding this animal the calf survival rate is at least 85%. If both calves had been poached, calf survival related to depredation would be 100%. Of the 8 cow/calf pairs with calves older than 6 months found during the initial operation, 5 were re-located in 1994. This represents at least 62% calf survival but as several of the older calves were estimated to be 2 – 3 years of age at the time of initial dehorning it is likely that the animals had dispersed and were simply not re-located in 1994. The Sinamatella IPZ is approximately 1200 km² and contains rugged terrain making aerial spotting and ground tracking difficult. Mortality as a result of depredation in older calves is unlikely, being more commonly due to poaching, intra-specific conflicts or malnutrition. During the 1994 operation, four new calves were located, all born to females previously dehorned in 1992. Several of these females had older calves at the time of initial dehorning that had entered the general population by 1994. One of the newly located calves did not survive and was assumed to have been killed by predators but the other three animals have recently been observed, representing a 75% survival rate. Dehorning of rhinos represents an intensive management strategy chosen to enhance the survival of wild rhinos in the face of an unsustainable loss from illegal hunting. In conservation terms, there is little point in persisting with dehorning if effects are negative, including continued illegal hunting pressure, compromised health from repeated chemical immobilization and dehorning complications, poor calf recruitment and failure of hornless mothers to defend calves from dangerous predators. However, despite initial failures with white rhinos, evidence from data collected in Zimbabwe suggests that dehorning has played a major part in reducing the risk of a rhino being hunted illegally especially with the establishment of IPZs and improved law enforcement. Many premature conclusions concerning the effect of dehorning on calf recruitment and survival have been reached and evidence from the Sinamatella operation and other IPZs in Zimbabwe suggests that the impacts of dehorning on adult black rhino are minimal, overall calf losses are sustainable and calf depredation by hyena and lion has little impact on the overall health of a population of recently dehorned black rhinoceros.