

## PERINATAL MORTALITY IN RHINOS

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Data on rhinoceros born with captive parentage was analyzed to determine survivorship after birth. A comparison of survivorship was made between studbook data and the animals solely from the San Diego Zoo/San Diego Wild Animal Park (SDZ/WAP). This study includes information on the four most commonly captive bred rhinoceros including northern white rhinoceros (*Ceratotherium simum cottoni*), southern white rhinoceros (*Ceratotherium simum simum*), black rhinoceros (*Dicercos bicornis michaeli* and *Dicercos bicornis minor*), and the greater one-horned rhinoceros (*Rhinoceros unicornis*). Inbreeding effects were not taken into account because the majority of rhinos bred in captivity did not accumulate an inbreeding coefficient with the exception of one *Dicercos bicornis michaeli*.

According to the 1989 studbook for the northern white rhinoceros (Klos and Frese, 1991), 3 successful births have been reported in captivity where all offspring survived beyond one year. Currently only 11 animals are maintained in captivity. No northern white rhinoceros births have occurred at the San Diego Zoo or Wild Animal Park.

The southern white rhinoceros has bred very successfully in captivity. The 1989 studbook (Klos and Frese, 1991) consists of 921 individuals but only 342 of those listed were born in captivity. Classification of the 56 mortalities occurring at less than one year are reported as follows:

	Total Births	Total Mortalities	0 days	1-30 days	1-6 months	7-12 months
International studbook	342	57	18	16	12	10
SDZ/WAP	75	9	4	3	1	1

The overall studbook mortality rate was 16% whereas the mortality rate at SDZ/WAP was only 12%.

The East African black rhinoceros 1990 studbook (Klos and Frese, 1991) consists of 369 individuals where 190 individuals were born in captivity. There are 22 mortalities in animals of ages less than 1 year:

	Total Births	Total Mortalities	0 days	1-30 days	1-6 months	7-12 months
International studbook	190	22	10	5	4	3
SDZ/WAP	5	0	-	-	-	-

SDZ/WAP had a 100% survivorship rate. One offspring had an inbreeding coefficient (0.25) in the studbook.

The West African black rhinoceros studbook (Klos and Frese, 1991) consists of 54 individuals, 10 births in captivity, and 4 mortalities less than 1 year. One mortality occurred at birth, two mortalities occurred between 1-6 months, and one mortality occurred at age 7-12 months. Currently only 2 adult rhinoceros are housed at the WAP.

The Indian rhinoceros studbook (Ruedi *et al.*, 1987) reports 84 births in captivity. Fourteen mortalities occurred at ages less than one year. The cause of death is included since it is listed in this studbook. Ten mortalities were reported on the day of birth from diagnoses such as stillbirths, abortions, breech births, torsion coli, and anaemia. Two animals lived one day and were diagnosed with bacterial encephalitis and an undetermined neonatal death. One animal lived 2 days and was diagnosed with necrotic colitis. One other animal whose death was attributed to the shortage of milk lived for 4 months. The SDZ/WAP reported 16 births through 1990 with 5 mortalities occurring at ages less than 10 days. Three mortalities were reported at birth, one occurred after the first day, and one occurred after 2 days. The overall studbook mortality rate for Indian rhinos in captivity is 16% and 31% at the SDZ/WAP.

#### REFERENCES

- Klos, H.G. and R. F. Frese. 1991. International studbook of the African rhinoceros. Jan 1/1/1991. published by Zoologische Garten Berlin.
- Ruedi, D., M. Leutenegger, and K. Tobler. 1987. International studbook for the great Indian rhinoceros (*Rhinoceros unicornis*). 4th ed. published by Zoologische Garten Basel.