

## (41) PATHOLOGICAL FINDINGS IN FREE-RANGING ZIMBABWEAN BLACK RHINOCEROSSES (*DICEROS BICORNIS*): A SUMMARY

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*Abstract:* The black rhinoceros (*Diceros bicornis*) is severely threatened with extinction, having dropped from an African population of about 65,000 in 1970, to less than 3000 at present, a decline largely the result of poaching. Zimbabwe maintains a relatively large population of these animals, although many are now managed in large conservancies, having been translocated in the late 1980s and early 1990s. Samples from translocated animals have enabled the establishment of baseline biological parameters and allowed investigation into pathological conditions.

Haemolysis has been a well recognized syndrome in captive black rhinoceroses, and when chronic and/or intermittent is associated with widespread deposition of haemosiderin (haemosiderosis), an insoluble iron product from red blood cell breakdown. Haemosiderosis is not recognized in free-ranging animals, although some animals held in confinement after capture and some translocated from natural habitats to conservancies have developed haemosiderosis months to years after capture. Widespread, marked lymphoid depletion was also usually seen in animals with haemosiderosis. Signs of acute haemolysis were seen in several animals held in creosote-treated bomas after capture.

Coronary artery aneurysms were diagnosed in 2 animals, 1 of which had ruptured and resulted in fatal cardiac tamponade. The exact cause of the lesions is not known, but they appear to be the result of chronic inflammation, possibly of parasitic aetiology. Degenerative arthritis of the coxofemoral joint was found in 1 animal, presumably the result of trauma and resulting instability.

*Streptococcus equisimilis* was isolated from fractured nasal bones, the result of self-inflicted trauma, and from visceral organs and brain in 2 animals. Splenic lymphoid hyperplasia at the time of necropsy indicated ongoing reaction to antigenic stimulation, most likely the result of haematogenously borne *S. equisimilis*, which likely resulted in septicemia and death.

Fecal samples were collected from 38 immobilized black rhinoceroses in 1988. Eggs from 3 different parasites were recovered consistently, including *Oxyuris* sp., *Anoplocephala* sp., and strongyles. *Gasterophilus* sp. larvae were quite consistently seen attached to the gastric mucosa and occasionally to the oesophageal mucosa as well in animals that were necropsied. The large bowel of 1 emaciated animal was found to be teeming with *Oesophagostomum* sp. Multiple, discrete oesophageal ulcers were found in 2 animals, in the mid oesophageal region. The possibility that they were caused by *Gasterophilus* sp. larvae is suggested by finding them in the upper alimentary tracts of most animals, although they were not found in the animals with ulcers. Information on the use of antehelminthics on these animals was not available, but they have been used in some instances on black rhinoceroses after capture, and it is possible that the ulcers represented old sites of attachment.

Skin lesions have been reported in free-ranging black rhinoceroses in South Africa and Kenya, as well as in Zimbabwe, and are felt to be the result of the filarial nematodes (*Stefanofilaria* spp.) that are present in the

lesions. Transmitting insects harbor the forms which develop into the infective third stage larvae, which are deposited into the skin when the insect feeds. The microfilaria develop in the definitive host and are ingested by the vectors during feeding, thus allowing the cycle to continue. The lesions described in free-ranging rhinoceroses appear to be unrelated to the syndrome described in captive animals.