
Doctoring Rhinos: Diseases seen in Kenya

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The current number of black rhinos (*Diceros bicornis*) in Kenya stands at about 500, and some 50 white rhinos (*Ceratotherium simum*) are on private ranches. Most of the black rhinos are fragmented over a wide range reducing opportunities for breeding and genetic interchange and hence accelerating the rate of extinction. Conditions have been worsened by breeding depression caused by environmental changes and demographic fluctuations such as biased sex ratios and genetic problems. Disease can also be considered as having an effect on the rhino population in Kenya and these remarks are based on animals seen during the major rhino translocations carried out in Kenya between 1986 and 1988.



Taking blood from an immobilized rhino

The “Natural” State of Health

Wild herbivores are known to be resistant to and carriers of diseases which, while not harmful to them, can be transmitted to domestic animals in areas of mixed grazing. Examples are buffaloes (*S. caffer*), which carry protozoan parasites (*Theileria*) and the foot-and-mouth virus, and wildebeests (*C. taurinus*), known to transmit the deadly disease of malignant catarrhal fever to calving cattle. Transmission is either by intermediate hosts like ticks or directly through saliva or faecal material deposited onto the pastures and ingested by the domestic animal.

Although they seldom graze in areas where domestic animals wander around, tests have shown that rhinos are infected with many types of disease, most of which are suppressed except in times of stress. Such stress, be it due to capture, nutritional problems or even environmental change, can lower the resistance of the body so that the underlying diseases exhibit themselves as infections which can lead to death if untreated.

Blood Diseases

Once a rhino has been immobilized blood is routinely collected from either the ear-vein or a vein in the front leg into 10 ml vials containing anticoagulants or into sera bottles. When the blood is smeared onto a slide and stained with Giemsa certain protozoan parasites are seen in the thin blood films. These include *Theileria* and trypanosome parasites ranging in type with areas of capture. *Theileria* species found in rhino blood are non-pathogenic while the trypanosome, which causes Nagana in cattle, can be of various kinds such as *T. brucei* which was isolated from a clean black rhino moved from Nanyuki into

Tsavo-Ngulia Sanctuary. The infection was seen within two weeks of the move and was due to heavy tsetse fly (*Glossina pallidipes*) challenge. The animal was treated with Berenil, a trypanocidal drug, and seen to improve but was found dead three weeks later, more probably due to traumatic injuries from a fight with another rhino than from infection. There has been some controversy as to the effect of trypanosomes on the black rhino which is known to be an animal indigenous to the savanna equatorial lands that have the most numbers of tsetse flies in Africa. There are black rhinos living perfectly well in Tsavo and the Masai Mara, areas with plenty of tsetse flies, and it is only when animals born and raised in “tryps-free” areas are moved into fly areas that problems arise. White rhinos are not so resistant to the fly challenge compared to black

rhinos although after initial treatment five white rhinos survived well in Meru National Park — until killed by poachers. The clinical manifestations of trypanosomiasis in the rhino include depression, increased salivation, increased body temperature and emaciation due to decreased feeding; in the later stages of the disease jaundice occurs leading to death. Treatment includes administration of several drugs, some curative, others prophylactic. Survivors do acquire some immunity to reinfection. Avoiding the transfer of clean rhinos from “tryps-free” areas to fly infected areas is the best way to avoid losses from this disease. Movement of infected rhinos from one part of the Republic to another might introduce a new type of the infection into an area clear of the parasite which may then multiply in other herbivores if a fly vector is available. It is therefore of paramount importance to screen the rhinos being moved into the different sanctuaries and treat them before release. Solio rhinos moved to Nakuru Sanctuary were trypanosome-free and they went from one non-fly zone to another.

Infectious Diseases

Bacterial infection is the most common and easiest to diagnose because it shows in the form of an abscess or as pus oozing from a wound on the skin. The bacteria which live on soil easily contaminate an injury and if not treated may spread into the blood as the thick skin of rhinos can prevent an abscess from rupturing to the surface. Pneumonia and pus from the nose can result from an infection which would be due usually to staphylococcus, streptococcus, anthrax bacilli, salmonella or brucella organisms. Young hand-reared rhinos commonly suffer from bacterial diarrhoea accompanied by loss of appetite or increased temperature. The treatment of bacteria is administering antibiotics by injection or as creams, sprays and ointment. It is routine to give such injections to captured rhinos before reviving them.

Most rhinos are carriers of viruses but, unless the animal is stressed by capture and translocation, are usually resistant to infection. Sometimes, if transportation under sedation is of prolonged duration, upon revival the rhino is observed to be listless, with increased respiration, nasal discharge and lack of appetite. It does not respond to the antibiotics and vitamins administered and sometimes dies in the pen.

Mostly seen as skin-patches, fungal infections are picked up when rhinos scratch on trees or in pens which have held infected animals: anti-fungal creams and injections are available for their treatment. Warts have been seen on captured rhinos. Usually of small size, just raised above the level of the skin, they can be surgically removed while the rhino is under sedation. Any bleeding is arrested and the site sprayed with antibiotics to stop any secondary bacterial invasion.

Parasitic Diseases

The principal internal parasites are worms which live in the gut of the rhino and are ingested with the browse in the form of eggs or larvae. Parasites range from bet-larvae in the oesophagus, lung worms of different types in the rumen, small and large intestines and lungs to even liver flukes in rhinos which feed in marshy areas. Assessment of parasitic load is determined by measuring the amount of eggs shed by the helminths in a gramme of fresh rhino faeces. Animals in pens are known to develop a high egg count per gramme and treatment with anti-helminths is therefore essential. The drug is given in drinking water or by hiding the tablets in a piece of sugar cane. Tapeworms have also been reported and treated in these animals.

Domestic and biting flies, ticks, mites, fleas and lice all have been observed on the skin of rhinos. Open wounds provide entry points for bacteria and enable flies to lay their eggs or deposit micro-filariae nematodes in the skin while tsetse flies introduce mechanically the trypanosome. Every black rhino in Kenya has wounds which vary in number with the fly zone

and the age of the rhino and can in fact help in estimating how old a particular animal is. Treatment is with healing oils and antibiotic creams.

Breeding Diseases

Breeding is most important for the rhinos translocated into sanctuaries. Oestrus in female rhinos occurs at intervals of 38-58 days and is characterized by frequent urination and increased respiration, both visible and audible. Oestrus lasts 24 hours and, if copulation is successful, after 474-488 days of gestation a single calf is born. Some diseases interrupt the normal reproductive cycle and cause premature birth or infertility. Two such, brucellosis and vibriosis, were tested for in the sera of all Solio rhinos sent to Nakuru; no animal was positive, giving high hopes for successful breeding. In future all areas of rhino capture will be tested for breeding diseases.

Inflicted Wounds

Fighting between males for territory or females sometimes causes serious injury and nearly all rhinos captured from the wild are found to have old traumatic wounds from fighting, rubbing on trees, thorns, arrow heads or even bullet wounds. Most of the wounds become infected by invading bacteria but with time heal leaving scars on the skin. More serious wounds should be treated with antibiotics.

Nutritional Deficiency Diseases

The number of rhinos moved into a new sanctuary has to be balanced with the availability of rhino browse in the area and the availability of fresh water. The level of fluoride in the water and the levels of different essential mineral salts available in the water, soil and vegetation must be all taken into account. A deficiency in the feed, water or mineral salts will be exhibited either as a loss of body condition, uncoordinated movement, infertility or, in extreme cases, death. Corrections can be made by supplementing the feed with salts containing minerals such as copper, selenium, molybdenum and magnesium.



Typical suppurating wound caused by bacterial infection
