

Another recent development is the establishment of Swaziland's first conservancy in north-eastern Swaziland. The conservancy is composed of a number of partners namely Mlowula Nature Reserve, Mbuluzi Game Reserve, Hlane Game Reserve, Shewula Game reserve (a community reserve on Swazi National Land {SNL}) and Sisa Ranch. This represents a partnership between state- and privately-managed nature reserves and the local community.

In the late 1970s a survey of Nationally Protection Worthy areas was conducted in Swaziland. This resulted in the proclamation of Mlawula and Malolatja Nature Reserves. It is our intention to revisit the other identified areas as part of the Swaziland Environmental Action Plan. Hopefully further suitable areas will be identified that will be able to support additional rhino populations. The Swaziland National Trust Commission would appreciate input from the Rhino Specialist Group in this exercise.

### 3.11.8 Tanzania ( M.K.S. Maige)

Tanzania has two different taxonomic groups of black rhino, *Diceros bicornis michaeli* and *Diceros bicornis minor*. The white rhino, *Ceratotherium simum*, does not occur in Tanzania.

During the 1960s it was estimated there were about 70,000 black rhinos in Africa (Cumming, du Toit and Stuart, 1990), with approximately 10,000 of these animals in Tanzania in the 1970s (Anon, 1993). Tanzania was popularly considered to hold one of the largest concentrations of black rhinos in Africa. Two of the four recognised black rhino subspecies, the southern-central *Diceros bicornis minor* and the eastern *D. b. michaeli*, occur in Tanzania (du Toit, Foose and Cumming, 1987). Their historic distribution extended virtually throughout the country to include the dry Acacia savannahs in the north, the Brachystegia woodlands in the south and west, and the coastal forest savannah mosaics in the east. They additionally occurred in highland forests, swamplands and dry thickets.

At this time rhinos were frequently seen and their large numbers permitted them to be shot on license by hunters and captured for international zoological gardens. Goddard (1967) recorded 108 individual rhinos on the floor of the Ngorongoro caldera during the period 1964–1966. However, within 23 years Kiwia (1989) recorded this figure as having dropped to 25 animals. Such was the carnage being inflicted by poachers on Tanzania's once prolific rhino population. The increased demand from about the 1970s, by Yemen and East Asian countries, for rhino horns to be carved into traditional 'jambiya' or dagger handles and for their purported medicinal properties, further reduced rhino numbers.

By 1984 it was estimated that Tanzania's rhino population had been reduced by 70% from 10,000 to around 3,000 animals. Since 1984 Tanzania fell from being the foremost black rhino range state holding a quarter of all Africa's black rhino, to being a minor range state holding less than 1%. By 1990 black rhino numbers in Tanzania had been reduced by over 97% to less than 100 animals.

The severe decline in elephant and rhino numbers, and the extent of poaching of all species throughout the country, prompted the Government of Tanzania to launch an unprecedented nation-wide crackdown on poachers, illegal dealers and traders in wildlife products named "Operation Uhai" in 1989. The operation was undertaken by members of the army, police, Wildlife Division, Tanzania National Parks and the Ngorongoro Conservation Area Authority, and with special magistrates assigned to hear wildlife cases immediately they were brought to court. The operation was most successful and poaching was greatly reduced since then.

However, the operation managed to secure rhino populations of *D.b.michaeli* in the north of the country which are generally well looked after. In the southern part, the lesser known *D. b. minor* consisted of at least five small, unassessed populations, and a number of isolated animals in the Selous Game Reserve. In addition there were occasional reports of single animals, with possibly little or no chance of survival scattered about the southern half of the country.

It is believed that the present status of the black rhino has changed only marginally since the early 1990s, though their distribution and numbers within the country are now becoming better understood.

Rhinos presently occur in small fragmented populations both in and outside protected areas. Locations where they occur within a national park, game reserve, or in the Ngorongoro Conservation Area are designated as Rhino Protected Zones (IPZs) or Rhino Sanctuaries. Tanzania presently has one Sanctuary and two IPZs. Current manpower densities are not as high as they should be and need to be increased if they are to truly qualify for IPZ status.

The *D. b. michaeli* are now restricted to four small naturally-occurring populations located in three protected areas; one population on the Ngorongoro crater floor; another population in the Moru kopjes in southern Serengeti and an undetermined population in northern Serengeti National Park. There is one reintroduced population in the Mkomazi Game Reserve rhino sanctuary.

The present status of *D. b. minor* is less well known. They occur in restricted, fragmented and undetermined sub-populations within the Selous Game Reserve (Laurie, 1991). Further field investigations may justify some of these areas being ultimately upgraded to IPZ status. Scattered as they are, it is still necessary to know the rhinos' demographics, population size and actual distribution in order to manage them properly and to be able to monitor their population changes. It is known so far that two major rhino sub-populations occur in two different sites within the expansive Selous Game Reserve: the Kidahi and Lukuliro populations. However, as a result of its status as a Game Reserve of over ninety years standing, and the sheer vastness of its size, an undetermined number of relatively small discrete sub-populations and isolated rhinos still exist in the more inaccessible areas of the Selous Game Reserve.

Before making any decision as to the most appropriate management system for these remaining animals, it is important that a comprehensive survey be undertaken to determine their relative distribution, densities, numbers and demographics. While carrying this out, ultimate security of all localities has to be ensured. With this in mind, Tanzania Wildlife Division intends to embark on a program to survey the most promising of these sub-populations in the Selous, notably the Lukuliro area. The Lukuliro, a thick forested area, is seen a potential habitat for rhinos covering a dry season core area of c.250km<sup>2</sup> and possible wet season dispersal area of c.800km<sup>2</sup>. Mechanisms for protecting such extensive areas are required.

In 1997 Tanzania, helped by WWF, collected and sent rhino dung samples from Lukuliro to the University of Cape Town in South Africa for highly polymorphic DNA analysis. The programme involved DNA extraction from 25 samples of rhino dung supplied from known localities within the Lukuliro. These were used to determine identity of individual rhinos. Tentative findings provided in 1998 indicated the area having a probable population of more than 10 animals. More efforts need to be put to place to be able to sight even more rhinos in the area. WWF no longer assists this programme for the time being.

Isolated or 'outlier' animals, are purported to still exist in non-viable numbers scattered about the south-east of the country in the Mbeya, Songea, Singida and Manyoni areas. The high costs of their detection, capture and relocation to a protected area outweighs the chances for their long term survival.

The Tanzania populations of *D. b. michaeli* and *D. b. minor* constitute the respective southern and northern limits of the range of these two sub-species in Eastern Africa. Any further decline in their numbers will increasingly separate members of both sub-species, and might ultimately reduce the southern limit of the range of *D. b. michaeli* and the northern limit of the range of *D. b. minor* to the extent that the black rhino becomes extinct in Tanzania.

The Draft Policy and Plan document for Rhino conservation currently operating in Tanzania stipulates that, rhino management in any one of the potential rhino sites must adopt one of the following strategies.

**Status-Quo Management.** With the exception of the Kidai rhinos, that receive a greater degree of surveillance and security from external financial support, all other sub-populations receive about 10 days of general surveillance and security per month. Financial and manpower restrictions do not allow for a greater commitment by the Wildlife Division.

**Metapopulation Management.** With donor support, establish a specifically trained, fully equipped, highly mobile and motivated team responsible for the full-time surveillance, monitoring and security of all rhino sub-populations within the Selous.

**IPZ Management.** With donor support, select one or more viable sub-populations for intensive management, leaving the remaining animals to be protected as at present.

As is advocated by other African rhino range states, whatever form of management is decided upon, it must be accompanied by an effective external detection and deterrent system and the co-operation of the local communities.

The Wildlife Division as part of the management of the national wildlife sector appeals to the international community to assist with funding for protecting this valuable flagship species in the Selous Game Reserve.

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#### 3.11.9 Zambia (W. J. Banda and C. Siachibuye)

The black rhino (*Diceros bicornis minor*) was once distributed naturally throughout Zambia, except portions of Luapula, Western and North Western Provinces. Zambia