

**INFORMATION DOCUMENT ON WHITE RHINO POPULATION MANAGEMENT
PURSUANT TO CoP 13 PROPOSAL 9**

This document has been submitted by the Kingdom of Swaziland.

Extensive studies by the IUCN's African Rhino Specialist Group (AfRSG) have shown that rhino populations which are below ecological carrying capacity will grow at or above minimum target levels of 5% per annum when harvested at levels of between 5% and 9% per annum, and that populations will adapt their growth rate to these harvest levels.

The AfRSG have advised Swaziland that her harvest levels should be set at at least 5% per annum but at no more than 9%. For precautionary reasons the AfRSG has suggested that Swaziland sets its upper annual take off limits at 8%. This is seen as a sound, scientifically based offtake for sustainable harvest levels of Swaziland's rhino population and for stimulating maximum reproduction.

As the Kingdom of Swaziland is committed to her own policy of maximum reproduction of the species in order to grow her rhino numbers, the Swaziland rhino management authority (Big Game Parks) has fully adopted this expert specialist advice.

After discussion with other delegations to this CoP 13, and in particular with those from other African rhino range states, the Kingdom of Swaziland now seeks to amend its proposal to downlist its white rhino from Appendix I to Appendix II, as follows.

- 1. Swaziland's annual harvest and export of live white rhino to appropriate and acceptable destinations will be limited to an upper limit of 7% of the population. Such take off will go to National Parks, Game Reserves, Game Farms and other conservation projects. Most of the animals should go to Southern Africa and remain part of the managed metapopulation. There would also be an exchange of animals for genetic management reasons.**
- 2. Only post reproductive males and identified problem animals will be exported as trophies, but not more than 1% of the population will be exported annually for this purpose, and then only if the live removal option is not practical.**
- 3. All exported specimens will be marked with microchips.**

Motivation and justification for the above is more fully discussed in the accompanying Information Document on white rhino population management to go with CoP Proposal 9.

INFORMATION DOCUMENT ON WHITE RHINO POPULATION MANAGEMENT PURSUANT TO CoP 13 PROPOSAL 9

This information document has been prepared by the delegation of the Kingdom of Swaziland to provide parties with a more detailed explanation and justification of the country's proposed white rhino harvesting strategy, and to clarify some issues regarding regional metapopulation management of its white rhinos. These issues are relevant to the consideration of Proposal 9 which we have put forward for consideration by the parties at CoP 13.

Managing the offtake from rhino populations for rapid population growth.

The Kingdom of Swaziland's delegation has sought advice on this matter from IUCN SSC's African Rhino Specialist Group, and in particular its Scientific Officer, Dr Richard Emslie. This body is regarded as the leading authority in matters relating to the recommended best management practices for successfully conserving African rhino. Swaziland fully embraces the provisions and recommendations of the African Rhino Specialist Group, and in particular its recommendations relating to population and metapopulation management. The white rhino offtake levels and harvesting strategy we are proposing are in line with the recommendations to emerge from the major workshop on biological management of black rhinos organized by the SADC Rhino Management Group, and which have been actively promoted by the specialist group.

A key component of all existing national rhino plans and IUCN's continental African Rhino Action Plan is the need to increase rhino numbers as rapidly as possible by at least 5% per annum. Swaziland fully subscribes to this principle, because experience has shown that failure to achieve this level of growth, even if just for short periods of a few years, can result in significantly lower rhino numbers in future. For example taking the example of Swaziland's 61 white rhino. If we can only achieve a sub-optimal growth rate of 3%, then in 10 years there will only be a net gain of 20 rhinos. However, if we can achieve a rapid growth rate of 8% then numbers would more than double with a net growth of 71 rhino (50 more rhino in just 10 years). This highlights the critical importance of rapid growth. More rhino also provides a bigger buffer against poaching. Geneticists have also advised that maintaining rapid population growth contributes to minimizing loss of genetic diversity. Sub-optimal biological management of rhinos is similar to poaching – one ends up with fewer rhinos.

Achieving and maintaining a high metapopulation growth rate can only be done if the land is not overstocked (with rhinos and other competing herbivores) and this is achieved by translocating surplus animals to maintain densities of rhino populations at productive levels.

We have based our proposed minimum and maximum offtake levels on the set percentage harvesting strategy for maximizing growth recommended by the African Rhino Specialist Group and SADC Rhino Management Group. This strategy is based on classic theoretical work on population dynamics by the late Graham Caughley; and backed up by rhino specific population dynamics modeling by Peter Goodman and John Hearne. **The basic principle behind the recommended offtake strategy is that the population density of rhinos harvested at a fixed annual percentage will eventually adjust itself and stabilize at a level that can sustain that specific % offtake level – as long as offtake levels do not exceed the maximum possible rate of reproduction that the species can sustain in the long term (or r_{max} which is around 9% for an established population of rhinos without a skewed sex ratio).** Harvesting in excess of this level would result in a decline in numbers.

With the recommended set percentage harvesting strategy, once densities reach around 50% of ecological carrying capacity (ECC) one starts harvesting at least 5% per annum but never more than 8%. If habitat improves for rhinos (and ECC increases), the harvested population will adjust its density to a new higher level. Similarly if ECC declines, the population density will drop to a lower level than can sustain the particular harvest level. The beauty of the strategy is that unless ECC is dropping very rapidly, one cannot under-harvest (highly desirable given target minimum 5% growth goals); and by setting a conservative maximum offtake of 8% (1% below estimated R_{max}) one cannot over-harvest. Thus the strategy has built in safe guards.

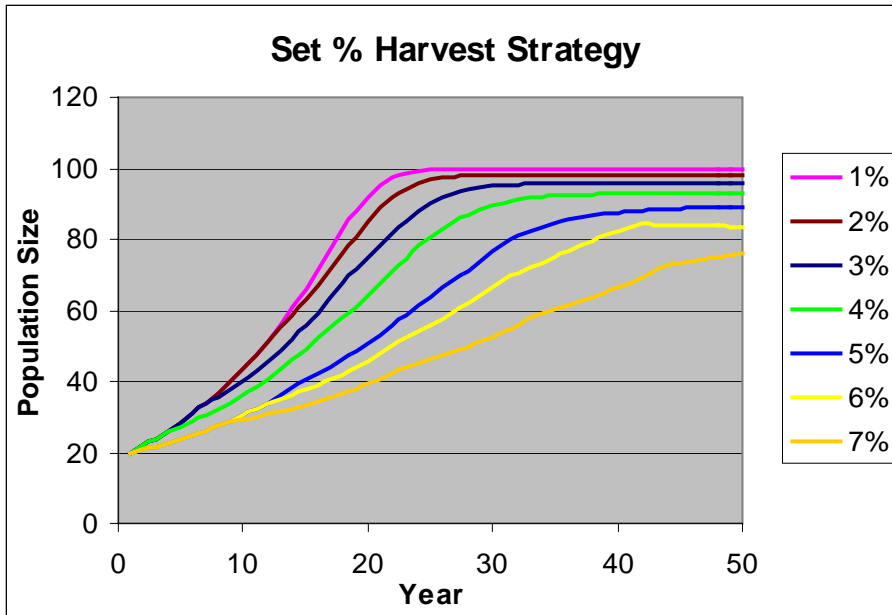


Figure 1: Modelled trends in numbers in rhino populations harvested at different set percentages per annum (from 1% to 7%), starting with 20 rhinos and with ecological carrying capacity set at 100. Following a period of growth, population sizes eventually stabilise at levels that can sustain the specific levels of set % harvesting. For example by harvesting at 6%, the model indicates numbers would eventually stabilise at around 85% of ecological carrying capacity. The lower the set percentage offtake per year, the nearer the eventual rhino density will be to ecological carrying capacity.

Most importantly, experience from the field supports the theory:

- There are a number of populations in a number of range states that have been harvested at conservative low levels (0-3% per annum). Given good protection, these populations have invariably shown an initial period of rapid growth, followed by a marked levelling off in growth, and sometimes even a decline in numbers, as populations have approached, reached or exceeded estimated ecological carrying capacity. The eventual falling off in population performance in populations harvested at 0-3% per annum (such as the two below in Figure 2) is as expected by the theory.

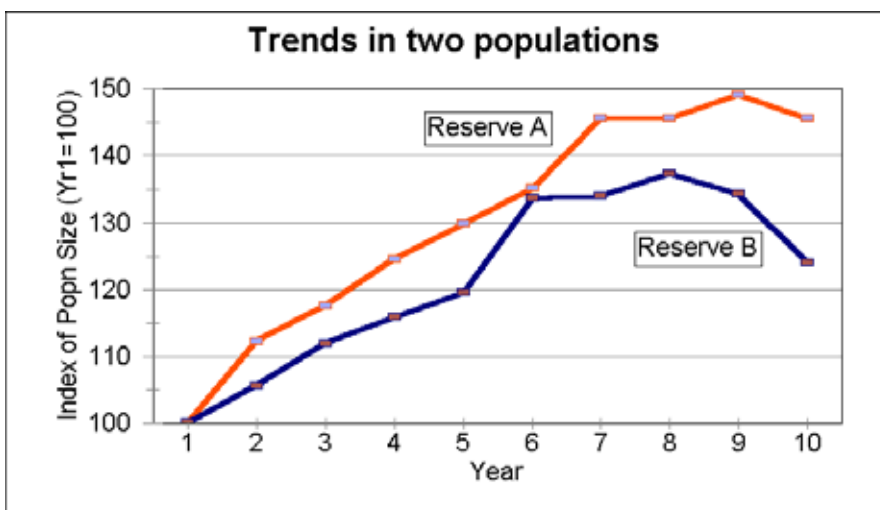


Figure 2: Trends in numbers in two major black rhino donor populations in South Africa where offtake levels were conservative in the past. The conservation agency managing these populations has since incorporated set percentage harvesting into its black rhino biological management policy (with a minimum offtake of 5% and maximum of 8%) in an attempt to return these populations to productive levels.

- Conversely, there are examples where rhino populations that have been more aggressively harvested have shown good growth rates.
- Recent analysis of Kenyan data showed that in one donor population harvested at an average of 5%, the underlying growth rate per year was 5% - as predicted by the model.

It may seem counter-intuitive, but both theory and experience in the field shows that conservative low levels of removals are not actually "safe", but rather will lead to significantly fewer numbers of rhinos which is highly undesirable. The key lesson is that to get long term growth of at least 5%+ one should remove an average of at least 5% of the population annually.

Another advantage of the set percentage harvesting strategy is that one is not dependent on getting ECC estimates correct. Modelling also shows that offtake levels are more predictable and much more constant with set percentage harvesting (compared to the previously recommended *manage at or below 75% of estimated ecological carrying capacity* harvesting strategy). As mentioned, the set percentage offtake strategy has built in flexibility, in that actual offtakes will adjust to changes in habitat and ECC. This is why we are proposing minimum and maximum percentage offtakes and not a number. The principle holds, irrespective of whether we are concerned with populations with 60 rhino or 600. This strategy requires accurate population estimates, which we have, as we monitor our rhinos intensively and know our rhinos individually.

To err on the side of safety we propose to limit live export to acceptable destinations to a maximum of 7% of the wild population per year. This is the preferred option of Swaziland. The hunting of surplus males will be restricted to a maximum of 1% of the wild population per year and will only involve post reproductive or identified problem males (for example an especially aggressive bull that has killed cows and/or calves which would continue to cause mortalities if moved elsewhere in the metapopulation). This is the less preferred option of Swaziland. Thus together, the maximum offtake of rhinos (translocated + hunted) cannot exceed the safe suggested maximum level of 8% recommended by the African Rhino Specialist Group.

While this will generate revenue to help fund our conservation efforts, first and foremost we believe this is a strategy that follows recommended best-practice, and which will make a contribution to rapidly increasing numbers of southern white rhino in the SADC region. In this respect, we believe the availability of additional rhino which are not restricted by Appendix I listing constraints, would encourage additional suitable habitat to be allocated to rhino and conservation as has so dramatically happened in South Africa.

Metapopulation management

Given some comments earlier during the deliberations of Committee I, we would like to clarify a number of issues regarding metapopulation management of Swaziland's white rhino.

Today, most surviving rhino populations occur in fenced sanctuaries. Continentally, it is recommended by the African Rhino Specialist Group that these discrete populations should be managed as metapopulations. As natural emigration and immigration can no longer occur in many areas, it is necessary to physically translocate animals from one park to another. This helps set up new populations as well as contributing to the maintenance of genetic diversity within the metapopulation. Although the numbers of white rhino in Swaziland have built up to the level where we need to remove animals to keep populations productive, we have never the less recently imported two new female white rhino from South Africa to enhance the genetic diversity of our populations. In the past, we have donated two white rhino to Kruger National Park in South Africa as well as selling other animals to private game ranches in South Africa and swapping white rhino for black rhino from Zimbabwe. Thus Swaziland's small population of white rhinos has in effect been managed as part of a much larger Southern African metapopulation.

However, having acceded to CITES, and with the current Appendix I listing, we currently cannot sell animals to South Africa, and this is where most of the potential market and potential additional habitat is for white rhinos.

All of Swaziland's white rhino are ultimately derived from founder animals which all came from South Africa. In addition, no more than 80 kilometers separates the Swaziland populations from the nearest South African population, whereas there are several South African rhino localities which are separated by many hundreds of kilometers.

Thus Swaziland contends it is logical for its southern white rhino to be seen and managed as part of a bigger metapopulation centered on the much larger population in South Africa, rather than managed in isolation. This too would be in line with the highly desirable international cooperation and cross fertilization of conservation efforts as advocated by SADC's Regional Programme for Rhino Conservation.