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Saving African Rhinos

Time for a Theory of Change?



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CONSERVATION

With rhino horn maintaining a high price, rhino poaching throughout Africa looks set to continue unabated with as many as 1,000 individuals illegally killed annually to satisfy the trade. In 2018, 769 rhino were killed in South Africa alone, an average of 2 every day.

Two main approaches limit the number of rhino being poached -- heightened security around rhino and demand reduction in end-user countries. Security involving more people or technology entails high costs. Demand reduction means changing attitudes, which may take decades to be effective.

The IUCN Red List of Threatened Species assesses the global populations of 5,400 Black rhinos as Critically Endangered and the 21,000 White rhinos as Near Threatened. However, this hides the situation in individual countries, including Rwanda and Uganda, which have seen the extinction of rhino populations and are in the process of re-introducing the species. Populations of fewer than 250 individuals are regarded as Critically Endangered.

To avoid the road to extinction, the number of rhinos born (and surviving) should be more than the number of rhinos killed by poachers and dying of natural causes. In other words, rhino populations should be growing and not diminishing. This is the case with successful initiatives at Lewa Wildlife Conservancy, along with contingent Borana Conservancy, Nakuru National Park, and Ol Pejeta.

The gruesome outcome of rhino poaching reducing populations. The scarcity of rhinos today and the corresponding intermittent availability of rhino horn only drives the price of horn higher and higher, intensifying pressure on declining rhino populations. For people whose annual income is often far below the subsistence level, the opportunity to change one's life by killing an animal that they don't value is overwhelming.





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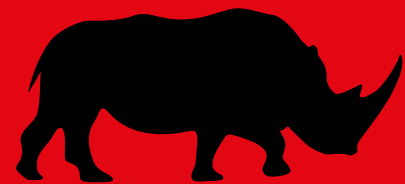
Recently a paper entitled ‘*A Theory of Change to grow numbers of African rhino at a conservation site*’ by Balfour *et al.*, (see below), recommended a framework for growing rhino populations. The authors used their personal experience of rhino management, built collectively for over 65 years, to produce their Theory of Change and then reviewed it at a meeting of 49 African rhino conservation managers and scientists. It is, therefore, reasonable to assume it considers all the key aspects of rhino management.

The Theory of Change approach first identifies long-term goals and then works back from these to identify all the conditions (outcomes) that must be in place (and how these relate to one another causally) for the goals to succeed. These are mapped out in an Outcomes Framework. This provides the basis for identifying activities or interventions that will result in achieving goals.

The themes are broken down into sub-themes or elements. For habitat management, five sub-themes were identified -- water, fire, disease, alien species, and other large mammals. For range availability, there were two elements -- security of land tenure and space for a population to grow.

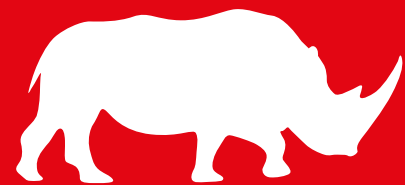
Containment and attrition require adequate fencing while loss due poaching entails pre-

ABOVE: Rhino births must be more than rhinos poached to avoid extinction. Female white rhinos have a gestation period of 16 months and produce a single calf weighing around 50kg. The interval between calves should usually be 24 to 30 months.



5,400

Global population of Black rhinos that are critically endangered.



21,000

Global populations of White rhinos that are near threatened.



RHINO POPULATIONS CAN BE GROWN BY MANAGING DENSITY LEVELS, AGE AND SEX RATIOS AND GENETIC DIVERSITY.

emptive intelligence, patrolling and response, engaging with neighbours and with the legal profession. Rhino populations can be grown by managing density levels, age and sex ratios and genetic diversity.

To determine success, a monitoring programme is essential.

Most rhino populations are already located or are being introduced into areas where there is other wildlife, such as lions which kill rhino calves. It could be argued that the goal of growing rhino populations should include management areas solely for rhinos.

The benefit of the Theory of Change approach can be found at Ziwa Rhino Sanctuary in Uganda. Once the home of several hundreds of both Black and White rhinos, Uganda suffered from unregulated hunting in the early 1900s and poaching, particularly during periods of civil unrest in the 1970s. This led to their extinction in 1983.

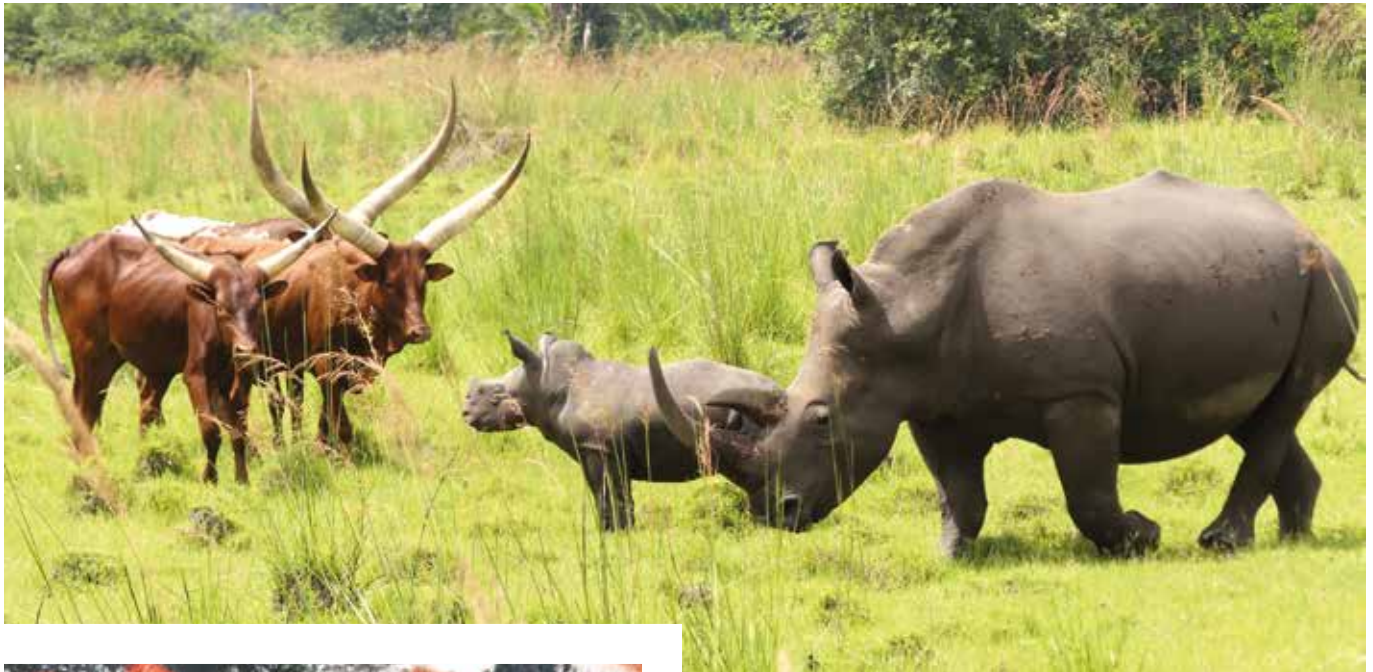
ABOVE: It is important to engage with the local communities. Rural villages around park borders are precisely the areas from which the criminals involved in trafficking wildlife products try to recruit people to assist them. People living near rhinos are inspired to protect wildlife and feel a sense of ownership for their natural heritage.

With the establishment of the Uganda Wildlife Authority in 1996 and a stable government, the time was right to consider bringing rhinos back to the country and, in 1997, the non-governmental organisation Rhino Fund Uganda (RFU) was formed with this as its mission.

In 2004, RFU had raised sufficient funding to complete the building of Ziwa Rhino Sanctuary (ZRS) on a former cattle ranch in central Uganda. By the end of 2006, six White rhinos had been introduced as the founder population. The goal of ZRS was to breed rhinos as quickly as possible to populate additional rhino sanctuaries -- in essence the same goal of the Theory of Change approach.

There have been 23 births since 2006, with a 14 per cent average growth rate, an outcome that would be deemed “excellent” applying the SADC (Southern Africa Development Community) performance indicators for a rhino population.

However, at Ziwa, effective management between 2005 and 2009 was variable, resulting in several issues that needed to be urgently addressed. In 2010, a new management team, including rhino management expertise previously missing, established a plan stating that “the rhinos must come first”, a principle that is maintained today.



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SUITABLE RHINO HABITAT

Managing the habitat to suit White rhinos is essential with short grass their preferred food resource. Grass under the overgrown bush and dry swamp have been improved by a combination of controlled burning and manual labour while allowing community cattle to graze on long grass reduce its height to that more usable by the rhinos. Would herbivores not perform this service for free?

Water availability has been improved by cleaning out old dams and extended by digging new dams and water pits in dry areas. Tsetse fly areas are treated with fly traps.

As the sanctuary used to be a cattle farm, there were no large wild mammals on site. Community cattle used for habitat management benefits neighbouring cattle keepers with an important source of grazing. They, in turn, assist in security by reporting suspicious incidents.

ABOVE: Habitat improvement measures include cattle grazing and manual bush clearance. As with humans, wild animals have specific requirements that their habitat must provide, including food and water for nourishment, cover from weather and predators, space to gather food in and attract mates, and safe corridors between habitats.

ADEQUATE RHINO RANGE

The 64km² Ziwa sanctuary had an original carrying capacity (before improvement) of only 38 rhinos as much of the area was uninhabitable. With habitat management, food and water resources have been expanded such that capacity has been doubled.

SECURITY

The sanctuary is bounded on three sides by a 13 strand electrified fence with a minimum power of 6,000 volts. The remaining side is bounded by Lugogo Swamp acting as a natural barrier.

Security is a shared responsibility between a team of on-site armed Uganda Wildlife Authority (UWA) rangers, the ZRS anti-poaching specialist team and the ZRS monitoring ranger team which accompanies each family group, uniquely, 24 hours a day, every day of the year. Monitoring rangers also collect hourly data on rhino activities on which management decisions are based.

A network of official informants and supporters from the neighbouring communities



PHOTO BY: RHINO FUND UGANDA



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assist with controlling poaching while UWA and RFU rangers can be called upon to assist local security forces, especially with the illegal bushmeat trade.

The national and local judiciary have been sensitised to rhino poaching and evidence collection improved, with the scene of crimes training for all rangers, to enable successful prosecutions.

NEAR NATURAL GENETICS AND DEMOGRAPHICS

In small populations as in ZRS, sex and age ratios are often skewed in the short term and normalised overtime to 1:1 male: female. If in the future, males significantly outnumber females, some may have to be relocated. Genetic testing for parentage is undertaken to indicate any chance of inbreeding.

PRODUCTIVE RHINO DENSITY

For maximum growth rate, rhino populations should not exceed 75 per cent of carrying capacity (CC). For the estimated ZRS CC of 38 rhinos, this equates to 28 individuals, the number reached in 2019. In normal circumstances, rhinos would be

ABOVE LEFT: Dehorning one of the Ziwa male rhinos to lessen any effect of fighting. Rhino dehorning is also seen as a temporary measure to prevent the killing of a rhino for its horn by poachers.

ABOVE RIGHT: Rangers monitor the rhinos 24 hours a day.

BELOW RIGHT: Electric fencing offers a strong defence against rhinos getting out of the sanctuary and illegal people getting in.

relocated to other protected conservation areas to maintain an acceptable density. However, an alternative is to improve the habitat to carry more rhinos, the choice made by RFU. With a revised carrying capacity of at least 78 rhinos, there is clear room for the population to increase while maintaining the maximum growth rate.

INTERVENTIONS

Balfour et al recognise that there would be occasions when rhinos have to be immobilised, an action that can lead to the death of rhino. In the case of ZRS, male fighting led to the one natural rhino death. To prevent further such tragedies, males were dehorned which led to a significant reduction in fighting. ●

**Balfour D, Barichievy C, Gordon C, Brett R. A Theory of Change to grow numbers of African rhino at a conservation site. Conservation Science and Practice. 2019; e40. <https://doi.org/10.1111/csp2.40>*

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