

Risks of black and white rhino crossbreeding

A new study warns game farmers not to keep black and white rhino in areas too small for them to breed with their own species. Prudent management is needed to ensure unrestricted access to species-specific mates, as crossbreeding hampers the growth of both black and white rhino populations. Amanda Coetzee reports.

RESearch has shown that it's possible for black rhino (*Diceros bicornis*) and white rhino (*Ceratotherium simum*) to crossbreed. Prof Terry Robinson of the Evolutionary Genomics Group at Stellenbosch University's Department of Botany and Zoology says if black and white rhino occur together in confined areas where there is no access to conspecific mates (males and females of the same species), there is a risk of hybridisation.

The South African researchers who worked with Robinson are Dr Vladimir Trifonov of Stellenbosch University, Dr Ian Espie of the National Zoological Gardens of South Africa, and Prof Eric Harley of the Department of Clinical Laboratory Sciences at the University of Cape Town. They say prudent management is needed to ensure

that access to species-specific mates are unrestricted and that the composition of populations is monitored. Where this is not possible, the isolation of the species should be considered.

"The situation could be monitored easily by the existing conservation agencies which issue permits for retaining rhino on properties. The conditions that would allow for hybridisation are fairly unique. I do not think it's necessary to develop a layer of bureaucracy to deal with this," Robinson says.

Rhino are among the group of mammals with the highest chromosome total: 82 in white rhino and 84 in black rhino. According to Robinson, a first-generation hybrid would have 83 chromosomes. The fact that hybridisation can occur between the two African rhino species is positive in that it means assisted reproductive technology could possibly be successfully applied to the conservation of the critically endangered black rhino. It may be possible to carry out interspecific embryo transfers between species whereby white rhino cows would be surrogate mothers for embryos of the endangered black rhino.



ABOVE: This black-white hybrid female rhino was born in 1988 at the Game Breeding Centre of the National Zoological Gardens near Pretoria. She was the case study for researchers who provided definitive genetic evidence that black and white rhinos can interbreed, which has serious implications for the genetic integrity of especially the critically endangered black rhino. photo: Dr Ian Espie

Rhino numbers slowly picking up

ONCE widespread across Africa, poaching and inadequate protection of the rhino's natural habitat has led to a sharp decline in their numbers. In 1970, it was estimated that there were about 65 000 black rhino in Africa, but by 1992/93 there were only 2 300 surviving in the wild. Since 1996, intense anti-poaching efforts have had encouraging results – total numbers have recovered to more than 3 600 and are still on the rise, but poaching is still a very real threat. In December 2003, SA had about 1 340 black rhino. Of the three subspecies, *Diceros bicornis minor* is by far the most common rhino in SA, with *Diceros bicornis bicornis* and *Diceros bicornis micheali* occurring in very small numbers. There are 11 330 white rhino left worldwide, of which more than 10 000 are in SA.

The black rhino browses woody plants and herbs while the white rhino grazes grass. The white rhino has a square upper lip, a pronounced nuchal hump when the head is raised and several cranial characteristics that differ from the black rhino. The name *white* rhino presumably comes from the Afrikaans word for describing its mouth: *wyd* meaning wide. Early British settlers in SA misinterpreted *wyd* for white. The black rhino is not black in colour, but is called black to distinguish it from the white rhino or maybe from the dark-coloured soil covering its skin from wallowing.

• Sources: SADC Rhino Management Group, IUCN African Rhino Specialist Group, and the International Rhino Foundation's website at www.rhinos-irf.org.



ABOVE: After being rescued from near extinction a century ago, southern white rhino populations have continued to increase in the wild. The species has now been classified as "lower risk – conservation dependent".

photo: Hluhluwe-Imfolozi Park

Keryn Adcock of the African Rhino Specialist Group of the International Union for the Conservation of Nature (IUCN) says she doubts if a cross between a black and white rhino would be fertile or survive until adulthood, and therefore there's no risk of a "mixed" black-and-white rhino species developing. "But crossbreeding delays the normal population growth of the different species. Keeping black rhino and white rhino together may also lead to some favouring partners of the other species, which will limit their suitability as genetic donors when they are re-introduced to a normal breeding population of their own species," Adcock says.

In nature, black and white rhino will not mate with each other because they stick to their own species in a large area. "The Stellenbosch research results are a warning to people who have bought surplus male black rhino and are keeping them in a small area with white rhino, without a dominant white rhino male," Adcock says.

Lapalala Wilderness was the first privately owned property in South Africa to re-introduce black rhino. Manager Roger Collinson says the rhino were introduced in 1990 from Zululand. "Today we have 22 black rhino and 36 white rhino on our 36 000ha property, and no hybridisation has taken place. Each rhino population's sex and age composition is well balanced."

• Contact Stellenbosch University's Department of Botany and Zoology on (021) 808 3236. 