



THE CRASH OF THE NORTHERN WHITE RHINO

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Nothing embodies the tragic plight of an animal teetering on the brink of extinction more than the northern white rhinoceros. Separated from its southern white rhino brethren by the Great Rift Valley and a tangle of Central African forests, the northern variety once numbered about 2,000 individuals. Decades of civil war and rampant poaching have taken a merciless toll, diminishing their numbers to single digits. The final few were rounded up and taken to refuges where they could be closely guarded.

The passing of Suni, one of the three remaining breeding males, last fall at the Ol Pejeta Conservancy in Kenya left only six northern white rhinos remaining on the planet. Then in December 2014, Angalifu, the elderly male living at the San Diego Zoo Safari Park, passed away of natural causes, leaving five northern white rhinos in the entire world. Nola, a “senior citizen” female, still lives at the Safari Park. Should this subspecies blink out, humans will have failed the Earth on an irreversible level. Although this rhino subspecies’ survival looks grim, conservationists have not given up. There is still a flicker of hope.

A MATCH MADE IN...THE SAFARI PARK

For nearly 30 years, the Safari Park had cared for a pair of northern white rhinos with the hopes of breeding them. But Nola and her would-be mate, Angalifu, never seemed to hit it off. Well past their reproductive prime, both enjoyed years of “retirement” in spacious field exhibits at the Safari Park until Angalifu’s unfortunate passing. Nola (photo at left), who is deeply loved by her keepers and visitors alike, gets regular pedicures, since her toenails occasionally grow rogue despite the long distances she walks each day. On “spa day,” keepers follow her in the truck across the field exhibit until she finds a comfortable place to lie down, then two keepers quickly trim her toenails while another brushes her down with a stiff-bristled deck brush, a massage that she loves. “We are honored to be her keepers for the rest of her life,” said Jane Kennedy, a lead keeper at the Park.

SPERM IN A BOTTLE

With so few northern white rhinos remaining, Angalifu bore the weight of his kind on his broad, gray shoulders. A team of scientists and keepers kept close tabs on him. When a persistent limp required veterinary treatment, our Reproductive Physiology Division took the opportunity to collect Angalifu’s semen. Despite his advanced years, Angalifu was still producing motile sperm in high concentration. The fluid was transported back to the lab at our Institute for Conservation Research for additional fertility tests and prepared for cryopreservation. Using a protocol designed for the rhino’s close relative, the domestic horse, the sperm was placed in a protective medium, then frozen rapidly in liquid nitrogen vapor before being settled in its place in our Frozen Zoo® at -321 degrees Fahrenheit.

“Because Angalifu had no offspring, our most pressing conservation goal was to preserve his sperm for the future when, through assisted reproduction, he may contribute to generations of northern white rhinoceros yet to be born,” explained Barbara Durrant, Ph.D., director of reproductive physiology, Henshaw Chair. Even if some of his sperm suffers from freezing and thawing, a single sperm may be used to fer-

tilize an egg in a process called intracytoplasmic sperm injection. “For a population as small as the northern white rhinoceros, it is imperative that every individual’s genes are passed on to future generations to maintain the greatest possible genetic diversity,” Barbara added.

WHAT’S GOING ON?

Many people know that a group of rhinos is called a crash. It is unfortunate that there are barely enough northern white rhinos left in the world to make a crash. The fact is, rhinos of all persuasions are under near constant threat from humans. Ever-expanding human populations gobble up forest and grassland habitat. But the rhino’s true curse is its horn, because of the misguided belief in some Asian cultures that the horn—made of keratin, the same material as our hair and fingernails—can cure everything from hangovers to cancer. The uptick in demand for rhino horn is fairly recent. Over time, hunting rhinos has gone from subsistence hunting by local people to today’s highly organized international crime rings profiting from Asia’s demand for rhino horn. Even museums and auction houses are falling victim to “rhino head heists” as thieves make off with the horned loot.

Rhino horn concoctions have been prescribed in traditional Chinese medicine for about 2,000 years, but until the late 1800s, the effect on the species was manageable.

By the early 1900s, however, extensive trophy hunting had been added to the mix, decimating the white rhino populations. Over the next few decades, concerted conservation efforts to protect rhinos made it illegal to hunt them and slowed their decline. Fortunately the white

rhino species recovered, although never to its original numbers. In the 1990s, demand was reduced when rhino horn was removed from the Chinese traditional medicine pharmacopeia, and alternatives for dagger handles were used in Yemen. Only about 15 rhinos were poached in South Africa annually from 1990 to 2007.

But then an alarming trend emerged: in 2008, 83 southern white rhinos were illegally killed by poachers; the next year, it was 122. In



MINDEN PICTURES

Tragically, the misguided demand for rhino horn shows no signs of abating.

2012, 688 rhinos were destroyed, and an unprecedented 1,004 rhinos were slaughtered in 2013. In 2014, poaching was the worst yet: a horrifying 1,215 rhinos were killed in South Africa, mostly in Kruger National Park, a reserve intended for protection. The primary culprit? An emerging demand for rhino horn in Vietnam.

WHY NOW?

In 2008, the perfect storm to annihilate the rhino was unleashed. Rumors swept across Vietnam that imbibing crushed rhino horn cured a politician's cancer, despite the complete lack of scientific evidence to back up the claim. There is no record of the horn being used to cure cancer in traditional Chinese medicine, either. The country is also experiencing a surge in wealth, with the number of multimillionaires increasing by 150 percent in the last 5 years. An increase in cancer cases, combined with few treatment options, is causing people to grasp at straws like rhino horn to try to restore health. This is despite the president of the Cancer Association of Vietnam publicly denouncing the efficacy of rhino horn as medicine.

Others insist that the demand for rhino horn has an even more nefarious purpose: ground into a powder, the horn is considered a party drug in Asia, much like cocaine, except without the pharmaceutical effects (imagine grinding your fingernails into a powder). Mixed with wine or water, the luxury potion is called "the drink

of millionaires"; some even snort it like snuff. This has increased its cachet in certain circles—though certainly not with those who decry the brutal, militarized killing of rhinos that is taking place to supply it. Whatever the supposed reason, the last Javan rhino in Vietnam was felled by a bullet in 2010, and its horn unceremoniously hacked off. Since then, poachers—most in highly organized and well-armed gangs—have pursued an all-out war on rhinos in Africa and even the tiny remaining population in west Java, all in the pursuit of profit.

WHAT'S NEXT?

While the International Union for Conservation of Nature (IUCN) lists three of the five remaining species of rhino as critically endangered, the outlook in Africa holds the best chance for hope. More than 70 percent of the world's wild rhinos hunker down in South Africa, many under armed guard.

San Diego Zoo Global is committed to saving rhinos from extinction. Our animal care staff and conservation scientists' efforts have led to the birth of 93 southern white rhinos, 68 greater one-horned rhinos, and 14 black rhinos at the Safari Park over the past 42 years. We are preserving cell samples in our Frozen Zoo®, including genetic material from 12 northern white rhinos, for future reproductive opportunities. We'd like to thank the Seaver Institute for their generous investment to launch the genetic rescue of the northern white rhino. And we are working in collaboration with other conservation organizations to fund anti-poaching patrols and support local community education efforts in countries where rhinos are found.

But to save rhinos in the long run, consumer demand needs to be addressed, animal trafficking laws need to be strictly enforced, poachers should pay a much higher price with harsher punishment, and the animals must be protected. "The conservation of all species falls on our shoulders as humans," said Jane. "What we do for endangered animals, including the last of the northern white rhinos, will have a huge, long-lasting impact on the world." We must take action—we cannot wait for another species to crash. ■

 Download the digital version of ZOO00Z and "crash" into a cool rhino video.



Left: Rhinos need their horns; humans don't. Right: Dr. Oliver Ryder, director of genetics, Kleberg Chair, holds a tissue sample from the Frozen Zoo®.

