



# Saving African Rhinos:

A Market Success Story



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In 1900, the southern white rhinoceros was the most endangered of the world's five rhinoceros species. Less than 20 rhinos remained in a single reserve in South Africa. By 2010, white rhino numbers had climbed to more than 20,000, making it the most common rhino species on the planet.

While southern white rhino numbers rose, populations of the other rhino species declined. This included the African black rhino and three Asian species. Why did the white rhino thrive whereas the others did not? In short, South Africa and a few other African countries adopted policies that created the right incentives for rhino conservation.

## BACKGROUND

The white rhino, once plentiful in southern Africa, was all but hunted to extinction in the nineteenth century. As Dutch and English settlers colonized the region, they killed rhinos for meat and sport.

By the early twentieth century, only a small population survived in what is now the Hluhluwe-Umfolozi Park in South Africa. Initially a royal hunting area for the Zulu Kingdom, the park was officially protected in 1895. Its population of white rhinos slowly recovered and by the mid-twentieth century had reached the park's full ecological carrying capacity.

At that time, the Natal Parks Board decided to take bold action to expand the white rhino population by capturing and relocating animals to new areas. Breeding groups of white rhinos were moved to other state-owned parks, such as Kruger National Park, and also

to private game ranches and zoos. This program, known as Operation Rhino, successfully re-established many new breeding groups throughout southern Africa.

By 1960, the white rhino population had grown to 840. The next decade saw increased interest in private game ranching, and in 1968 the first legal white rhino trophy hunt took place. The Natal Parks Board continued to supply live white rhinos to private landowners for a nominal fee on a first-come, first-served basis. By the mid-1980s, it became clear that there was a problem with this system. A long waiting list of private owners was eager to acquire rhinos for trophy hunting, but they showed little interest in breeding them. This led conservationists to question whether the private sector could actually be entrusted with rhino conservation. On closer examination, however, it appeared the problem was a matter of fixing the incentive structure.



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### PRIVATIZING RHINOS

Before 1991, all wildlife in South Africa was treated by law as *res nullius* or un-owned property. To reap the benefits of ownership from a wild animal, it had to be killed, captured, or domesticated. This created an incentive to harvest, not protect, valuable wild species—meaning that even if a game rancher paid for a rhino, the rancher could not claim compensation if the rhino left his property or was killed by a poacher.

The Natal Parks Board thought that providing rhinos for a low fee—an effective subsidy— would

encourage private owners to be good stewards of rhinos. However, a closer look at rhino prices—both for buying and for hunting—suggests that this view was mistaken. In 1982, the Natal Parks Board list price for a live white rhino was 1,000 South African rands (R). That same year, the average trophy price was R6,000. Any private landowner receiving a live rhino had a very strong incentive to sell it as a trophy as quickly as possible to pocket a 600 percent profit. The alternative was allowing it to roam on his property where there was a risk of losing it to a poacher or neighbor.

### THINKING CREATIVELY

#### **Rhino poaching is driven by economic forces.**

If we really want to save the rhino, we must understand how those forces work and look at examples of success stories to see what we can learn from them.

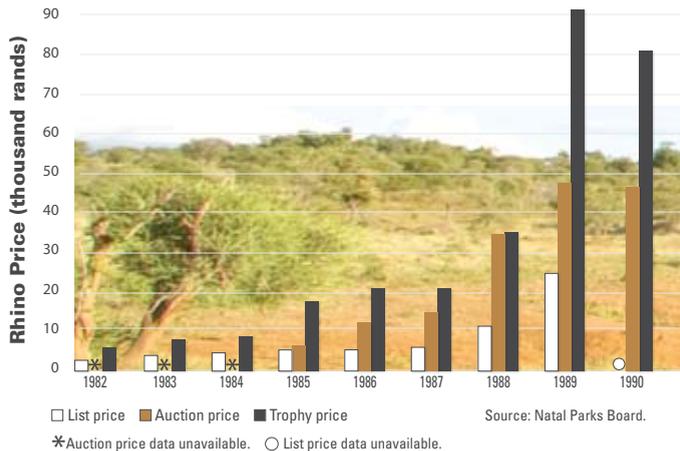


FIGURE 1: RHINO PRICES

For the next three years, as the waiting list for white rhinos grew, the Natal Parks Board tripled its list prices, but demand continued to outstrip the rate of supply. In 1985, a private rancher offered a few rhinos up for auction, prompting the Natal Parks Board to do the same. In 1986, the board auctioned six rhinos, which sold for an average price of just above R10,000—more than double the list price. Encouraged by this success, the board increasingly embraced the auction system over the next three years, during which time the market price soared to an average of almost R49,000 by 1989.

During this same period, the average price for a rhino trophy also rose, but peaked in 1989 at just under R92,000 before pulling back to R80,000 in 1990. Figure 1 illustrates the relationship between list prices, auction prices, and trophy prices between 1982 and 1990. From 1990 onward, list prices were abandoned and rhinos were mostly auctioned, as the Natal Parks Board realized the benefits of market pricing. By this time the gap between the price of a live rhino and a trophy had narrowed such that the trophy price was only about 60 percent

higher than the live price—a more realistic mark-up.

Also during this period, the South African Law Commission addressed the issue of ownership of valuable game animals. Recognizing the problems associated with the *res nullius* maxim, the commission drafted a new piece of legislation: the Theft of Game Act of 1991. This policy allowed for private ownership of any wild animal that could be identified according to certain criteria such as a brand or ear tag.

The combined effect of market pricing through auctions and the

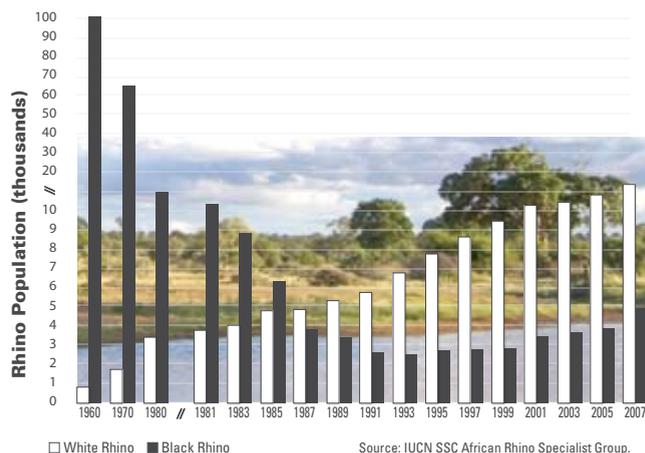


FIGURE 2: RHINO POPULATIONS

□ White Rhino ■ Black Rhino

Source: IUCN SSC African Rhino Specialist Group.



creation of stronger property rights over rhinos changed the incentives of private ranchers. It now made sense to breed rhinos rather than shoot them as soon as they were received. Interestingly, the private market also benefited state agencies such as the Natal Parks Board, which gained from the increased income from rhino sales. From a mere few thousand rands in the early 1980s (the rand/US dollar rate was one to one at this time), the annual market value of live rhino sales grew to R64.5 million (US\$7.8 million) by 2008.

## BLACK AND WHITE

Not only did the white rhino market grow in value, but white rhino populations also flourished. Figure 2 shows trends in white rhino numbers from 1960 until 2007. Contrast those numbers with the black rhino, which mostly lived in African countries with weak or absent wildlife market institutions such as Kenya, Tanzania, and Zambia. In 1960, about 100,000 black rhinos roamed across Africa, but by the early 1990s poachers had reduced their numbers to less than 2,500.

Rhino poaching is driven by the demand for rhino horn of both species, which is used for orna-

## RHINO HORN USES

### There are two major markets for rhino horn.

Throughout Asia, rhino horn has been used for thousands of years for both ornamental and medicinal purposes. Ailments that rhino body parts supposedly cure include skin disease, bone disorders, and fever. The second market for rhino horn is the dagger trade in the Middle Eastern nation of Yemen where carved rhino horns are used as handles for ceremonial daggers called jambiyas.



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## ABOUT CITES

**CITES was formed in the mid-1970s as an international treaty to protect wild species threatened by trade.** All member countries (more than 175) agree to regulate the trade in species across their borders in one of two ways. Species are either listed on Appendix 1, under which no trade is allowed, or Appendix 2, under which trade is allowed under a permit system only. About 800 species are listed on Appendix 1 and 32,500 on Appendix 2. CITES employs only a single officer to oversee global enforcement of the treaty.

mental and medicinal purposes in Asia. Since the mid-1970s, international trade in rhino horn has been subject to a ban under CITES, the United Nations Convention on International Trade in Endangered Species. After the CITES ban came into effect, prices for rhino horn soared on black markets and have continued rising ever since.

By the mid-1990s, rhino poaching had declined to sustainable levels and many conservationists assumed that the CITES ban had solved the problem. Rhino poaching, however, has re-emerged as a serious problem since 2008.

A more plausible reason for the temporary respite in poaching pressure is that all the “easy pickings” were gone. Unprotected wild rhino populations are rare to non-existent in modern Africa. The only surviving African rhinos remain either in countries with strong wildlife market institutions (such as South Africa and Namibia) or in intensively protected zones.

South Africa and Namibia have replicated the successful approach to white rhino conservation with black rhinos, currently protecting 75 percent of the world’s black rhino population and 96 percent of the

white rhino population. After receiving CITES approval in 2004, both countries have even introduced limited black rhino trophy hunting.

### CROSSROADS

Despite clear evidence that strong property rights and market incentives constitute the most sensible model for rhino conservation in Africa, many international conser-

vationists and policymakers do not recognize this. Through institutions such as CITES, they continue to pursue a command-and-control approach that depends on regulations or bans to restrict wildlife use. This approach now threatens to undermine the success achieved thus far, as the extraordinarily high black market price for rhino horn has fuelled a new poaching drive.

Before the recent upsurge in poaching, Asian nationals attempted to gain legitimate access to rhino horn by posing as trophy hunters. In response, South Africa's government tightened controls over the hunting industry as well as the sale and use of live rhinos and rhino horn. Unfortunately, these restrictions only seemed to precipitate the current poaching crisis. The

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### THREE RHINO MYTHS

◆ **Rhino horn is used as an aphrodisiac in Asia.**

Rhino horn is used as an ingredient in traditional Chinese medicine to treat serious illnesses involving high fevers and toxicity. In Vietnam, it is sought as a cancer remedy.

◆ **Rhino poaching is driven by greed and evil people.**

Rhino poaching is driven by the high price for rhino horn, which is caused by an artificial supply restriction from the ban in the face of persistent demand, creating perverse incentives.

◆ **The medicinal demand for rhino horn is unscientific and therefore not legitimate.**

Use of rhino horns in Chinese medicine has cultural roots going back thousands of years and many of its adherents are unlikely to pay much attention to scientific arguments.

demand for rhino horn is significant and persistent enough to be very rewarding to criminals who are willing to supply it.

South Africa's game ranchers are also willing to supply the market, and some have already experimented with ways to increase breeding and horn growth rates in a free-range farming environment. Rhino horn is made of keratin (similar to fingernails and hair) and can be periodically and humanely harvested from live rhinos at minimal cost (as little as \$20 dollars to sedate an animal and cut off its horns). If the CITES ban was lifted, legal commercial rhino horn production from ranchers could outcompete most illegal harvesting by poachers.

Unfortunately, this pragmatic market solution does not appeal to key international conservationists, who insist that better enforcement and more political will are needed to solve the poaching crisis. Tragically, this may not be enough. There are

many other examples of failed bans, such as alcohol prohibition and the war on drugs, characterized by insufficient incentives to implement them successfully. The market-incentive success story of African rhino conservation may yet be undermined by a failure to recognize and learn from it.

For more information visit:  
[rhino-economics.com](http://rhino-economics.com)

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