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## With radioactivity against poachers

Pilot project could reform nature conservation

Rhino poaching has become a major problem again in Africa. In view of the increasing number of cases and growing concerns, scientists have now chosen a new approach in a pilot project: a horn provided with radioactivity is too great a risk for poachers.



James Larkin's scientists are now testing two South African rhinos to see whether their method can work. Photo: Rhisotope Project



In the test series, no radioactive isotopes are used, but a simulating preparation. Photo: Rhisotope Project

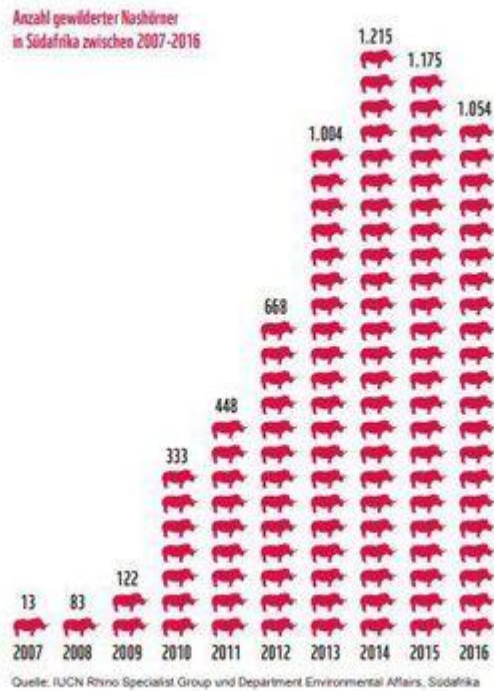


Rhinos play an important ecological role on the African continent. Photo: Rhisotope Project





Rhinos are once again at great risk from poaching. The "Rhisotope Project" takes a new approach to control. Photo: Pixabay



According to the WWF, poaching numbers are significantly higher than they were a few years ago. Photo: WWF / IUCN

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By Katharina Moser, Windhoek

Over a million rhinos once roamed the African savannah. Today, 150 years later, there are only about 25,000 animals left in the wild, according to the World Wildlife Fund (WWF). First the hunting by the Europeans, then the unrestrained poaching of the last decades have severely damaged the stocks.

There are two species of rhinoceros on the African continent, the white rhinoceros and the black rhinoceros. The former is classified as potentially endangered by the International Union for Conservation of Nature (IUCN) with around 20,000 animals, the latter with only 5,000 specimens as endangered. Most of the animals now live in South Africa, Namibia, Zimbabwe and Kenya, the majority in game reserves and protected areas. Rhinos play an important role in African ecosystems: As grass-eaters, they devour enormous amounts of vegetation and thus keep the steppe in balance.

Rhino poaching increased enormously, especially in the 1970s and 1980s, as the horn is viewed as a valuable remedy in the Asian market. There the powder is used as a panacea - from hangover to fever to cancer. Vietnam in particular has a great influence on the horn trade today: there, possession of rhino horn is simply a sign of wealth and a good position. And that, although the Washington Convention for the Conservation of Species CITES only provides for the export of certain wild products in specific exceptional cases and trade in the horn is therefore prohibited.

As a result of many anti-poaching measures, primarily in South Africa, the populations are finally experiencing growth again, but poaching has recently increased again. Although the corona pandemic put a damper on it, the number of poached rhinos in South Africa has risen by 9,000 percent since 2007. It is home to 90 percent of the world's rhinoceros population, but 9,600 rhinos were killed between 2010 and 2019 alone.

A research group in South Africa has now started a pilot project that aims to reduce rhino poaching in southern Africa in a new way. In cooperation with international institutions, the University of Witwatersrand initiated the "Rhisotope Project". Radioactive isotopes are to be injected into the horns of the animals, which make the horn easily detectable on the transport routes, while they should not have any effects on the health or behavior of the rhinos.

Isotopes are types of atoms that have the same number of protons but different numbers of neutrons. Some of them are radioactive. The idea: If the method is used on a large scale, the probability that there is at least one treated horn among an illegal delivery of horns is very high. For security reasons, more than 10,000 radiation detectors have already been set up at airports and other transport branches around the world, which can measure the slight radioactivity of the horns so that deliveries can be tracked down. As a result, it is a great risk for poachers and their distributors to trade in horn. It may even happen that your criminal offense is not only considered illegal rhino trafficking,

James Larkin is a lead scientist on the project and director of the Faculty of Radiation and Health Physics at the University of Witwatersrand. "The initiative should have a double effect: On the one hand, the radiation would devalue the horn enormously. Who would want to consume horn as a cancer cure or hang it up in their living room as a prestige object if there is a certain probability that it is radioactive? Second, the radiation makes the deliveries much easier to track down and thus poses great risks to the poachers," Larkin said in an interview with AZ.

In May of this year, the researchers started the first series of tests on two rhinos in the South African Buffalo Kloof Private Game Reserve. The first thing to do is to find out whether the injected isotopes remain in the horn at all and how they move. The scientists are not yet using radioactive isotopes, but rather a preparation made from the amino acid L-proline, which contains stable carbon and nitrogen isotopes. In this way, what happens to radioactive isotopes in the horn can be simulated without any health risk to the animals. In the next three months it will now be documented whether and what effects the injection of the isotopes has on the animals. If everything works according to the plan, radioactive isotopes can be used. According to Larkin, the team of scientists previously evaluated studies that study the effects of radiation on animal populations around Fukushima and Chernobyl. If the project proves successful, the technology will be made available to government and private rhinoceros owners on the African continent.

But the project also met with criticism. Not only the French environmental protection organization Robin De Bois, but also Pro Wildlife recently made negative comments about the research. According to media reports, Daniela Freyer, press spokeswoman for Pro Wildlife, said: "Years ago there were attempts and announcements to make the nasal horn worthless or inedible through color or even poison, which were unsuccessful and could not stop poaching. Radioactivity (work weak) is even more questionable from a health and nature conservation point of view than these earlier failed attempts." Robin De Bois even suggested that the project was just an attempt by the Russian nuclear authority Rosatom, which is also involved in expanding its influence in Africa. The question is also

The fact that new methods must be adopted against poaching, however, seems all the more urgent when one looks at the forecasts of some environmental organizations. Representatives of the "Rhisotope Project" state that around 1000 animals are poached in South Africa each year. "If this continues, the South African rhinoceros will be close to extinction in nine years." With its new approach, the project also wants to prevent anti-poaching units from having to face threats to their life and limb on a daily basis. According to the "World Wildlife Crime Report", the trade generates 189 million euros in profit every year. One of the main reasons for the continuing boom in poaching is the high demand in Asia, but structural challenges in the African countries of origin also favor the phenomenon. High poaching figures correlate with high poverty values. In addition, corruption is one of the most important factors in wildlife crime. Bribery at all levels of the retail chain, according to the WWF, makes poaching a low risk crime. There is also a lack of trained and equipped staff.

A new anti-poaching approach would also be interesting for Namibia. Just a few days ago, the Ghaub farm reported three rhinos killed. 96 percent of all African black rhinos live in Namibia. According to the WWF, Namibia's fight against poaching is weak and there is a lack of a holistic system. Poachers have been reported, but the evidence is seldom sufficient to convict them. "The professionalism of the authorities is low and the equipment available for rangers is insufficient."

A new approach, such as the use of isotopes, it seems, is more than urgently needed - because rhinos are not only an important part of the African ecosystem, but also an asset to tourism, and thus a pillar of the economy. "You can shoot a rhinoceros once. But you can take a photo a thousand times," says Larkin.