

Publication: The Straits Times, p A40  
 Date: 24 November 2016  
 Headline: How African game reserve cuts rhino kills by 96%



A patrol car driving by a fence which separates a private game reserve in South Africa from neighbouring farmlands and homes. The fence has sensors which alert rangers to any breaches. It is part of a pilot programme using technology to ward off poachers. ST PHOTOS LIM YONG

# How African game reserve cuts rhino kills by 96%

Advanced technology such as thermal imaging used to track movement of visitors

Audrey Tan  
 In Mpumalanga (South Africa)

Poachers have hunted the endangered rhinoceros to near extinction, and to save the animal, conservationists sometimes have to remove its horns.

The horn can fetch up to US\$80,000 (S\$114,000) per kilogram on the international black market – eight times the price of a kilogram of ivory.  
 But this method of protecting the rhino is intrusive.  
 Instead, a new high-tech solution has been developed to keep poachers away from the reserves where the animals are located.  
 It involves the use of advanced technology – such as thermal imaging, sensors and biometric scanning

– to track and monitor the movement of people within the reserve. The goal is to intervene and stop people entering the reserve illegally before they kill an animal.  
 The first-of-its-kind programme has been successfully piloted at a 62,000ha private game reserve in South Africa. More than 70 per cent of the world's rhinoceroses are found in the country.  
 Results from the first phase of the pilot, which started in January last year, showed that the technology helped to reduce the number of rhino kills by 96 per cent compared with before the technology was used. Dubbed Connected Conservation, the solution is a joint initiative by international technology companies Dimension Data and Cisco.

The strategy is a marked change from other tactics used by conservationists to keep poachers away from the rhino's horns.  
 Conventional methods to ward off poachers often involve interaction with the animal. They include tranquillising the rhino so sensors for tracking the creature can be inserted into its horn and under its skin, and removing its horns completely.  
 Both have drawbacks. Tranquillising a rhino puts it at risk of becoming blind or lame due to the drugs involved, and removing a rhino's horns deprives it of a tool for defence or attracting mates.

Mr Bruce Watson, Dimension Data's lead for global strategic relationship with Cisco, told The Straits Times during a site visit to the reserve earlier this week. "Many of the solutions that are in place today are reactive solutions, and I think what that does is stress out the animal because you are interacting with the animals."  
 "So what we've done is to look at a proactive-type solution – protecting the land against human beings. People cannot get to the animals."  
 Closer to home, locally developed technology has excited conservation circles in Singapore and abroad.



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ST VIDEO: Using technology to protect rhinos <http://st.sg/4Mx>

Singapore researchers from technology firm Autodesk earlier this year came up with an easy-to-use 3D modelling software that was used by international marine group The Hydrous to monitor and document coral growth.  
 The National Heritage Board also used the Autodesk technology to scan and develop 3D models of 10 sculptures at Haw Par Villa, to be used for heritage documentation, preservation and presentation.  
 Local virtual reality start-up Hiverlab has partnered with art historian Michael Walsh, an associate professor at the Nanyang Technological University, to document an old Armenian church in Famagusta, Cyprus, that can be "explored" using virtual reality.  
 "We wanted to show how the sites looked like in different eras, the pivotal events that happened at each location, how one place is related to another and how people's

lives have changed over time," said a Hiverlab spokesman.  
 Prof Walsh said: "It is truly a case of the hard sciences working in tandem with art history and cultural heritage, to breathe life into fragile and endangered sites, and to take them into the global classroom. The technology available today is unprecedented, but it needs to be content-driven."  
 Assistant Professor Akshat Kumar, from the Singapore Management University's School of Information Systems, said there is a growing trend of using technology in the conservation of societal and environmental resources.  
 He added: "The application of technology for several of our conservation issues holds great promise and has the potential to generate new insights for moving us closer towards a sustainable future."  
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## Sensors pinpoint where incursions take place

Poachers prefer to work at night, using cover of darkness to hide their illicit activities from rangers. Mr Bruce Watson wants to end that. The group executive of technology company Dimension Data's Cisco Alliance believes technology can help get rid of that "blind spot" in the night to save endangered wildlife.  
 For instance, thermal imaging equipment, sensors and cameras installed along the perimeter fence of a game reserve could alert rangers to people trying to enter the reserve illegally. This would allow them to intervene before an animal gets killed.  
 The results of a pilot programme using such technology have been encouraging. The Connected Conservation programme, a joint initiative of Dimension Data and Cisco, is being tested at a private game reserve in South Africa, home to the endangered rhino.

Since the technology was installed in January last year, there has been a 96 per cent reduction in the number of dead rhinos. A key component of the system is the network of sensors installed along the perimeter fence of the 62,000ha reserve.  
 The sensors send alerts to the control station when it detects an anomaly, for instance, a person climbing the fence. The ranger receiving this information knows exactly where the incursion has occurred and can dispatch a helicopter to the site within eight minutes. Without the technology, it would take hours to identify a break-in, by which time the poacher would have escaped.  
 The next phase of the pilot will look at, among other things, how seismic sensors can be deployed to ensure all vehicles entering the reserve stay on the trail and do not venture into other areas.

There are already positive signs, said Mr Watson, who has more than 20 years of experience in the South African bush. The Straits Times saw 15 rhinos within two hours while on a game drive on Tuesday. This was the biggest number of rhinos he had seen on a single drive.  
 The hope is that the technology can be replicated in other reserves in Africa and globally to aid in the conservation of endangered species, including elephants, lions, pangolins, tigers and even searays.  
 Mr Chris Dedicost, executive vice-president of worldwide sales for Cisco, said the technology provides those protecting the rhinos with the "valuable insights, transparency and visibility they need to make effective and informed decisions against poaching".

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