THE USE OF DRONES IN RHINO CONSERVATION

In recent years, various new technologies have emerged aimed at tackling wildlife crime. Drones, satellite imagery, predictive analysis, DNA analysis, hidden cameras, GPS equipment and apps have been used to predict, locate, track and catch suspected poachers.

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Drones, in particular, have received increased press attention as a 'silver bullet' to end the current rhino poaching crisis. But how effective are they?

What are drones?

Drones, also known as unmanned aerial vehicles (UAVs) are remotely piloted aircraft, controlled either autonomously on-board by computers or via remote control of a pilot on the ground. They are usually deployed for military operations, but also used in a growing number of civil applications.

While drones employed by the military can fly long distances and carry heavy loads (e.g. missiles), drones for conservation purposes are much smaller and more limited. Typically, they measure 1–2 metres across, have a flight time of 30–60 minutes, a range of 30–50km, and can acquire photographs, video footage and produce maps of surveyed areas. They can be equipped with night-vision equipment or thermal-imaging cameras, so can be used 24 hours per day.

Evaluating drones' effectiveness for conservation

As a tool for monitoring wildlife, drones have proved useful for monitoring some species. For example, they have been used for orangutan conservation in Indonesia as they can fly above the tree canopy – a task previously difficult and time-consuming for rangers – to track and monitor populations by observing nests.

Funding for drones

Equipped drones are not cheap, with prices ranging from $50,000 to upwards of $250,000. However drones have been successful in attracting funding. In 2012, Google gave $5 million to WWF to purchase conservation drones to fly over parts of Africa and Asia to help monitor and catch wildlife poachers.

Can drones be used to help combat rhino poaching?

As a tool for anti-poaching, drones have a variety of capabilities. The Air Shepherd Initiative says it uses military-style computer analytics to identify poaching hot spots, and then sends silent drones with night-vision equipment to track poachers. In partnership with the University of Maryland, they use algorithms to predict when and where poaching will take place. Rangers are then pre-deployed to intercept poachers.

Ol Pejeta Conservancy in Kenya partnered with AirWare to carry out testing to complement ranger teams. The trial was deemed successful but it was noted that 'finding an airframe that was robust enough for the environment proved difficult'.

What are the problems with drones as rhino-protection tools?

Concerns that conservation drones may be misused have led to bans in certain areas. In January 2015, the Kenya Civil Aviation Authority banned the use of drones, advising organisations that permission should be sought from the Ministry of Defence, while Namibia has banned the use of drones over all of the country's national parks.

There are technological limitations to drones' usefulness; they have a limited battery life, range must be within line-of-sight of the operator, and malfunction can lead to an expensive crash. Equipment can make them heavy and gusty winds or hilly terrain can make them difficult to operate. Most importantly, drones may be unmanned but they still require skilled operators. If the operator has not received sufficient training, the capabilities will not be fully utilised. And in some cases, drone operators have allegedly been bribed to give out sensitive rhino location details to poachers.

What does Save the Rhino think about drones?

When we're considering how to allocate our funds, we always, always ask the rangers what the priorities are, rather than being led by companies manufacturing specific items of kit. While drones have a role in conservation, a single piece of technology will not solve the poaching crisis. It's of paramount importance to have the basics in place first: well-equipped and highly trained rangers on the ground.

To learn more about the different types and capabilities of drones, visit **www.wildeas.org**

Field programme managers watch a road test of a drone in Namibia