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UAVs "a remarkable support tool" in counter-poaching ops – CSIR

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The national conservation agency SANParks in partnership with the Peace Parks Foundation (PPF) next month launches what is termed an "innovative wide area surveillance system", one outcome of an extensive unmanned aerial vehicle (UAV) evaluation project in Kruger and other national parks.

The project was run under the auspices of PPF's rhino protection programme and funded by the Dutch Postcode Lottery and included the Council for Scientific and Industrial Research (CSIR) as the scientific and technical partner along with UAV supplier, UAV and Drone Solutions (UDS).

Overall it aimed at determining if and how UAVs can be applied in operations dealing with environmental asset protection. This broad umbrella includes countering rhino poaching and aerial environmental surveys covering, for example, the temporal and spatial dynamics of savannah elephants, fire management, monitoring aquatic systems, detection of radio frequency collared animals and as a survey tool for rhino guardian strategies.

The programmes placed, the CSIR said, "a substantial focus on developing advanced technology solutions to combat wildlife crime and protect South Africa's rhino in the wild".

The national scientific research organisation applied knowledge gained from the defence environment to formulate three concepts of operations for UAVs in counter-poaching and five for conservation management. Tests and evaluations looked at how UAVs can be effectively applied to enhance SANParks' current operational capabilities. Further analysis aimed to determine which functionalities are required from unmanned aerial systems (UASs) for successful implementation.

UDS was selected as the preferred UAV supplier and provided an unmanned aircraft with the necessary sub-systems support for the duration of the testing.

The system was optimised by UDS and tested by the CSIR in Kruger and in other national parks over a nine month period.

Phase one looked at whether the system can operate stealthily and if so, at which altitude would it need to fly to not be heard. In phase two, optic sensors were tested to determine at which altitudes objects of interest could be located. Objects included people, vehicles, flashing lights and human size high resolution test targets. Tests were conducted in three different veld types – savannah, bush and mountainous areas. Optic surveillance systems were tested at different times over a 24 hour cycle.

Different scenarios were created during the third phase to represent operational concepts. This was done to assess functions, features and performance under representative operating conditions found in Kruger.

The test results brought to light that UAVs are "a remarkable support tool if included in the arsenal of counter-poaching technologies" already in use.

The CSIR maintains optimal use of UAV technology in counter-poaching will come with the development of operational procedures that integrates UAS into the current concepts of operations. Utilisation of these capabilities on actionable intelligence of poacher activities in protected areas is seen as another stage.

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