Counting big game with drones

Researchers have developed a new, cheap method for counting big game such as gnu and oryx in a nature reserve in Namibia. They are combining drone flights with automated image analysis.

'Counting game is a huge challenge,' explains Devis Tuia, professor at the Wageningen Laboratory of Geo-Information Science and Remote Sensing. 'Automating the process makes it easier to collect accurate, up-to-date information.' He worked with biologists at the Kuzikus Wildlife Reserve in Namibia and a group of Swiss colleagues to develop a new method. Drones take photos of the game from a distance. Object recognition software then analyses the images and the results are verified by humans.

The animals are sometimes difficult to distinguish from the bushes and rocks, but the software has used deep learning to master this task. First, around 200 volunteers counted the animals in thousands of aerial photos of the reserve. The system analysed these images and learnt to recognize and count the animals. The software also flagged unclear observations so that they could be checked by humans.

With this method, it takes one person just one week to carry out a count of the Kuzikus reserve, which covers about 100 square kilometres. In the past, the count required a team in a helicopter, which was both expensive and not very accurate. The study was published in July in Remote Sensing of Environment.

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