Computer spots wildlife

Counting wildlife on aerial photos leads to population estimates that are too low. The computer can do it better than the human eye.

This is the gist of the study with which ecologist Jasper Eikelboom got his PhD. He taught a computer to detect elephants, giraffes and zebras in aerial photos of African savannas.
Nature managers have been using aerial photos to estimate wildlife populations for 50 years. But the precision of this method leaves much to be desired. Estimates assume an underestimation of the real number of animals of up to 80 per cent. Eikelboom taught the computer program RetinatNet to recognize wildlife in photos. His teaching materials were hundreds of aerial photos taken in two game parks in Kenya. The idea was: the more pictures the better. Eikelboom: 'There is a great deal of variety in what the program has to learn to recognize. How the light falls, for instance, the background, the angle at which the photo is taken, and so on.'

Exam photo

The algorithm learned fast. On 'exam photos', the program ended up seeing more than 90 per cent of the elephants, giraffes and zebras spotted by humans. So humans see more. But the computer also spotted animals the human eye missed. Altogether,

> **The computer spots up to 95 per cent of the animals in the photos**

Eikelboom thinks the computer spots up to 95 per cent of the animals in the photo.
The computer works fast (one or two seconds per photo), is indefatigable, and can count the game on an area up to 10 times bigger than humans can map at the same cost, thinks Eikelboom. Altogether, that produces a much more precise estimate of the total number of animals present in an area. RK