

Science for Environment Policy

Drones can be used to study birds without affecting their behaviour – with some precautions

Drones – unmanned aerial vehicles – may be used in close proximity to bird populations without causing disturbance, finds a new study. Drones hold the potential to monitor species and areas that are difficult to reach. The authors advise that, when used with caution, drones could become a valuable tool in the monitoring of species, particularly in protected areas.

Drones are increasingly used in ecological research to study wildlife, because of their ability to reach inaccessible populations and habitats. Despite the increasing use of drones to observe bird populations, there are no ethical guidelines for the potential impact of drones on animal welfare.

In this study the authors aimed to determine the impact that drones have on the behaviour of birds, in order to provide guidelines for the continued use of drones in this type of research.

During March and April 2014, the researchers used quadricopter drones, each with four spinning blades, to approach three different bird populations: mallard ducks (*Anas platyrhynchos*) in a zoo, and flamingos (*Phoenicopterus roseus*) and common greenshanks (*Tringa nebularia*) in their natural habitat. The birds were approached at different speeds (2 metres per second, 4 m/s, 6 m/s and 8 m/s) and angles (20°, 30°, 60° and 90°) using three different coloured drones (white, black and blue), and their responses noted according to three categories (no reaction; small amount of movement; or, flying away).

The researchers found that in 80% of the experiments they were able to fly a drone to within four metres of a bird population without noticing any visible signs of behavioural change. The speed at which the drone approached, the colour of the drone used and repeated approaches did not appear to affect bird behaviour in a significant way.

However, the angle at which the drone approached the birds did have a marked impact on how they behaved. When approached from directly above (90° angle) all the bird populations either moved, or flew away from the drone, and the authors hypothesise that this was due to the drone being associated with a bird of prey.

The findings are good news for future studies that plan to use drones to record data from wildlife populations; however, the authors urge caution. They note that different species will react differently to the presence of drones, and that animals can still experience stress without showing a change in behaviour. In addition, different drones vary in size and [noise](#) generation, and these factors could also have an impact on wildlife.

Following their study, the researchers advise that: drones should always be launched more than 100 m from bird populations; that the distance a population is approached from is adjusted according to the species being observed; and that drones are never used to approach populations at a 90° angle.



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