Research shows how vultures evesdrop to gather vital flight information

November 7 2018

Credit: CC0 Public Domain

A new study has revealed how vultures use their very own social networks to work out the best way to use thermal updrafts to help them fly vast distances.

The research, carried out by a team from Swansea University led by Ph.D. student Hannah Williams, examined how the vultures seemed to make risky but efficient choices in flight when they observed the flight of other vultures in the network.

Their paper Social eavesdropping allows for a more risky gliding strategy by thermal soaring birds has just been published in the *Journal of the Royal Society Interface*, and Hannah hopes it will help provide a better understanding about the strategies birds use to navigate the aerial landscape.

She said: "Thermal updrafts are chaotic in their occurrence, so it makes sense for these heavy birds to 'eavesdrop' on the movements of other birds to find thermals, just as human pilots do when gliding.

"We worked with Dr. Olivier Duriez, of the University of Montpellier, to track the movements of five vultures at a bird of prey centre in France, using special tag technology contained in backpacks worn by the birds.

"We hypothesised that birds would fly towards areas where other birds had been circling and that they would do so at fast speeds. It is a risky flight strategy to glide at fast speeds,but it appears they may take this risk when using information from the network."

Working with her co-authors from the Swansea Laboratory for Animal Movement and SHOALgroup, both based in the University's Biosciences Department, Hannah explained that the research data was collected in just three days but it had taken more than six months to design the necessary tracking experiment and the tag technology.

She said: "This is part of a multi-year collaboration and the design of the tags, which notably collect high-frequency airspeed data, has been a long

and challenging process.

"From here we hope to delve further into how birds may acquire information from other birds in the sky, to make better movement choices."

Co-author Dr. Andrew King, of the Department of Biosciences, said: "We are used to hearing about how flocking species like pigeons and starlings use social information. This data, gathered simultaneously from a number of soaring vultures, provides a great example how relying on others for information can be beneficial at a very different spatio-temporal scale."

Hannah completed her doctorate last year after studying with the Swansea Laboratory for Animal Movement and SHOAL. She said: "This publication was the project that brought all the aspects of my Ph.D.together—animal attached logging devices, flight dynamics and social behaviour.

"Thanks to a great set-up in France using captive birds that could fly freely each day and a team of hardware engineers and movement specialists at Swansea University,we were able to collect the high-frequency flight data needed to investigate this eavesdropping behaviour."

She now plans to continue her research into animal movement at the University, working with Dr. Emily Shepard, from the College of Science, studying flight patterns of condors.

More information: Hannah J. Williams et al. Social eavesdropping allows for a more risky gliding strategy by thermal-soaring birds, *Journal of The Royal Society Interface* (2018). DOI: 10.1098/rsif.2018.0578

Provided by Swansea University