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TECHNOLOGY

Birds Are Mostly Cool With Drones

Buzzing quadcopters can get surprisingly close to flamingos without ruffling their feathers.



David Grémillet

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A white drone with red stripes ascended from grassy wetlands in southern France. Equipped with a GoPro camera, it climbed 30 meters into the air before buzzing across a green lagoon speckled with pink. Dozens of flamingoes perched atop twig-thin legs bathed below, oblivious to the hovering observer homing in on them.

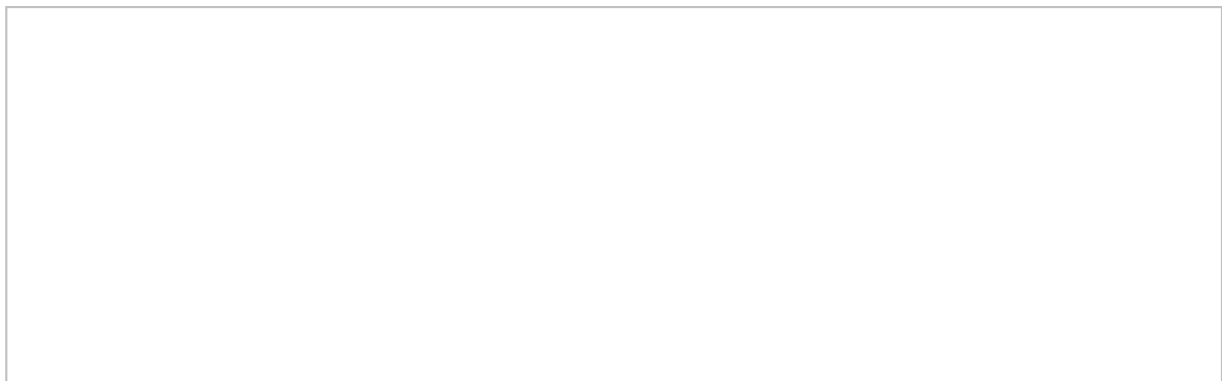
The flock's nonchalance shocked wildlife biologists who have worried

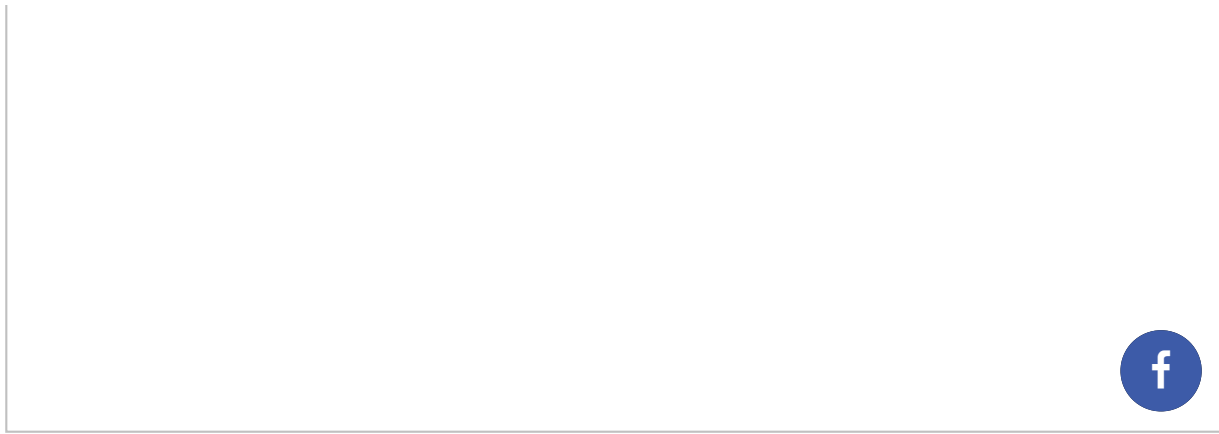
about how drones might disturb birds. “I was amazed, I was absolutely amazed,” said seabird ecologist David Grémillet, who had [watched the flamingos](#) ignore the drone. “My hypothesis was that at such close range the birds would fly off, and in most cases they didn’t—that was really a big surprise.”

Grémillet and his research team from France’s National Center for Scientific Research in Montpellier teamed up with the quadcopter manufacturer [Cyleone](#) to see how close unmanned aerial vehicles could get to different bird populations without ruffling their feathers. The results from the research could inform wildlife conservationists looking to create ethical guidelines for the use of drones with birds, according to Grémillet.

To track the flamingo encounter, Grémillet used a laser rangefinder that showed how close the quadcopter, fittingly called a “Phantom,” could sneak up on the birds. As he observed the aerial vehicle fly from 100 meters to only 10 meters away from its target, Grémillet wondered whether the wild flamingos would disperse or continue nuzzling their feathers. But even as the drone hovered just four meters away—the equivalent of about 13 feet—the flock remained unfazed.

In their study, the team launched three quadcopters of different colors, toward wild populations of flamingos, common greenshanks, and mallards in a zoo. After more than 200 trials, the researchers found that the drones could get within four meters of the birds without disturbing them 80 percent of the time. It didn’t matter whether the machine was white, black, or blue—or, notably, how fast it was flying.





Wildlife ecologists prepare to launch the "Phantom" drone at a flamingo flock. (David Grémillet)

What did affect the birds, the team discovered, was the angle at which the drone swooped into the swamp or zoo. The quadrocopter had little problem getting close to the birds when it traveled at angles of 20 degrees, 30 degrees, and 60 degrees. But when it descended vertically at a 90-degree angle, it spooked the birds, causing many to fly or move away.

“They just don’t like something coming down upon them because you could imagine it looks like a predator coming down trying to sneak attack,” Grémillet said. He suggested that in all other cases the machine looked so foreign to the birds that they did not classify it as a threat unless if it came from directly overhead. The team reported their findings this month in the journal *Biology Letters*.

Grémillet said that in addition to providing first steps for creating ethical wildlife guidelines, the findings could help in filming bird behavior. He also noted that quadrocopters equipped with scanners could track birds that have been implanted with identifier chips. “You could have a mini research station just above the birds you want to study,” Grémillet said.

Because drones are the latest installment in the field of wildlife conservation, biologists should be finding ways to use this technology ethically.

“The ability to get that close to birds that cheaply has a lot of potential to

revolutionize bird censuses,” said Kristoffer Whitney, a researcher at the University of Wisconsin, Madison, who looks at the history and ethics of wildlife biology. The unmanned aerial machines could be particularly useful when counting how many birds live in wetlands, which tend to be inaccessible to researchers. Whitney said that because drones are the latest installment in the field of wildlife conservation, biologists should be finding ways to use this technology ethically. “If it turns out to be true that these machines have really little impact on the behavior of birds compared to older techniques like airplanes,” he said. “You will see more scientists imploring these techniques more often because there would be less concern that they harm the birds.”

Kevin McGowan, a scientist from the Cornell University Lab of Ornithology, suggested another use for drones in wildlife research: inspectors of [hard-to-reach bird nests](#). McGowan observes the American crow, which often takes him dozens of feet into tree canopies to study. “It is dangerous and time consuming and it bothers the birds,” McGowan said. “But if we can use a quadrocopter to check within minutes after the parents leave—that’s a big plus for us.”

But McGowan also says that in the United States, Federal Aviation Administration rules are stifling the scientific use of drones. Unmanned aerial vehicle restrictions vary in different countries, and in France, Grémillet is able to use the quadrocopters in certain areas only under the supervision of a licensed pilot.

He said that his team will next observe how close unmanned aerial vehicles can get to other avian populations. Except for birds of prey, which—as many YouTube videos show—tend to [mercilessly attack any drone](#) that flies into their airspace.

ABOUT THE AUTHOR



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