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English 1301

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Unmanned Aerial Systems: The Future of Wildlife Research

High in the sky, it's a bird. It's a plane. It's an Unmanned Aerial System. In layman's terms, that's a drone. Drones are becoming more and more popular and the technology that they bring forth is taking over the airspace. It may be for leisure, spying or even a special delivery, but how are they helpful with the wildlife in our ecosystem? The ability to research and study our wildlife has never been so easy. The production of Unmanned Aircraft Systems (UASs) have brought a helpful and cost effective angle to the expansion of knowledge for ecologists everywhere, in order to educate and broaden the ideas behind wildlife studies. Although the concern of affecting the conditions of animals has come to arise, studying the nesting habits of a rare bird species in the canopies of the forest or bringing face recognition to the animal poachers of Africa, (UASs) play a crucial role in obtaining research and protecting the wildlife around us.

In an article titled "Low-Budget Ready-To-Fly Unmanned Aerial Vehicles: An Effective Tool for Evaluating the Nesting Status of Canopy-Breeding Bird Species", Weissensteiner argues that "remotely controlled, unmanned aerial vehicles (UAVs) promise to be of high potential for a variety of applications in ecological and behavioral research. Off-the-shelf solutions have recently become available for civil use at steeply decreasing costs" (425). With the attachments of cameras, ecologists are able to expand their biological research with more ease and a safe approach, allowing for more direct and efficient research.

Before the advancement of (UAVs), there were two main ways of gathering information on canopy nesting species. These methods consisted of the old-fashioned way of using

binoculars and hoping for a good angle to retrieve any data of what was residing in these nests. The other method being a dangerous climb to the top of the canopy, with chances of breaking limbs and disturbing the animals, just for a chance at an up close and personal glimpse of the birds in their homes (Weissensteiner 425). These methods did not seem very effective when trying to collect necessary research for advancement. (UAVs) were able to help assist in these studies by giving an overlook viewpoint that was safer and less disturbing to not only the ecologists, but the animals themselves.

Studying the birds in a small contained area is one thing, but what about the large herds of animals that roam the open lands? Natsumi Penberthy plainly states in a magazine article titled “Eye in the Sky”, that “monitoring wildlife populations is no easy task”. Through mapping the terrain, drones are able to give a bird’s eye view of the wildlife and allow video footage that creates a much easier and proficient way of counting and keeping up with the populations (Penberthy 1). I know that I would appreciate the helping hand from an overview video image, rather than hand counting everything that I see and hoping that nothing is overlooked or missed.

One might object here that the disturbance of these animals in their wildlife habitats are harmful and cruel. The fact that these modern mechanics are interfering with the natural living of these groups are an issue. In the article "Unmanned Aircraft Systems as a New Source of Disturbance for Wildlife: A Systematic Review", Susanne Jenni-Eiermann describes how animal disturbance and behaviors are an important factor during drone research. The author goes on to describe that, “UASs operate at low altitudes (<500 m) and in any terrain, thus they are susceptible to interact with local fauna, generating a new type of anthropogenic disturbance that has not been systematically evaluated.” (Jenni-Eiermann 1). She also shares the different tactics and patterns that effect animals in these different approaches. Research and statistics were

created by flying the drones at different altitudes and using different motions to examine behavior. It was found that, for the sake of not leaving their safe zones, parental birds that are newly breeding or nesting are less likely to leave their nest, due to the feeling of protection in their homes (Jenni-Eiermann 7). What this means is, although the birds may feel threatened, they feel safer in their nests rather than fleeing to an unknown shelter. Therefore, the birds are less likely to disperse during monitoring. UAS research also shows that “lawn-mower flights, generally conducted for mapping, surveillance and wildlife census, performed at higher altitudes and following regular trajectories are less likely to affect the animals” (Jenni-Eiermann 6). In other words, Jenni-Eiermann believes there are less disturbances through direct movements from a higher altitude of flying patterns.

Although good points are made in the article about the possible disturbances in certain situations created by UASs, it is very clear that the ecologists and researchers behind these studies truly care for the sake of the animals. Even though there are slight disturbances in these methods of research, the positive outcome truly outweighs the negative. The collection of information gathered from the animals help to protect them in the long run. By observing the ecosystem with these drones, we are able to better understand how these groups live. These researchers are taking the necessary steps to learn how to avoid any unnecessary disturbances in future studies.

Aside from modern research, wildlife monitoring has become essential in studying the endangerment of animals from poachers. Poaching has become a major issue in wildlife with extinction becoming more and more common. Thanks to the technology of algorithms, UASs are able to detect and support face recognition of the individuals involved in the heinous acts. By

using infrared and thermal camera images, researchers are able to collect information on poaching individuals and groups in order to create a database for the wanted murderers.

Julie Linchant describes in the article "Are Unmanned Aircraft Systems (UASs) the Future of Wildlife Monitoring? A Review of Accomplishments and Challenges", fixed-wing prototypes are expanding the capabilities for monitoring due to the easy launch, high speeds and low energy needed for flying, in order to cover larger areas of terrain (241). By using these systems, we can get a large jump on stopping these criminals before they can kill and make profits from the skins and horns of defenseless creatures.

As a lifelong animal lover, I believe that it is very important to continue the research needed to learn more about the animals in our ecosystem, as well as keeping a helpful eye for the sake of protecting these creatures. Unmanned Aerial Systems have continued to grow and evolve in what they can help provide for these studies. Technology is a never-ending progression and I feel strongly that the research put forth in these small drone systems will only continue to provide the necessary information and guidance needed to offer a helping hand with our feathered and furry friends.

MLA Work Cited

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