

Drones in the Local Environment

When you think of wildlife, you would typically think of lions from the African savanna, penguins from Antarctica, or pandas from the south-central Asian bamboo forests, but how would react when if I said drones? That is right, drones have been a huge part of wildlife ever since they were invented. Whether they be for photographing or preservation, drones are a large part of wild animals and native plants these days, and that is a good thing.

There are a lot of examples of how drones can help out the local environment, but I think the most important cause that drones are being used for is the protection of endangered species. There is a company that roams the Savannas of Africa with drones in an effort to stop poachers from illegally killing endangered elephants and rhinos, as well as many other non-endangered species (BBC News, 2017). Drones fly around in a large area tracking the animals, which the footage then gets beamed back to the mobile control center that controls the UAS. This method allows them to find poachers very easily and stop the illegal killing of these species. “Most of the poaching in Southern Africa happens in the late afternoon and early evening,” says Otto Werdmuller Von Elg, a member of this team, “This is done so the poachers can hack off either the Rhino’s horn or the elephant’s tusks in the late afternoon when they still have sunlight. And generally, they would try to get out of the national parks under the cover of darkness.” That is the time they fly the most with drones that have night vision cameras. Once they catch a poacher, they send their location to park rangers so they can try to catch the perpetrators. Another thing that the drones can do without doing anything is deterring poachers before they even begin their illegal activity. Otto states, “Our vehicles look quite different from the local cars, so people ask us what we are doing, and that word gets around. Because of this poaching moves or gets

disrupted. The poachers have to move further away from their homes. They have to move into areas with fewer animals and because of this there has been a large decline in poaching numbers.” There are a couple of problems with this operation, however, one of them being that the parks are huge, and drones cannot be everywhere at once. The other, bigger, problem is that very rarely will a poacher be arrested. A possible reason for this is that poachers are bribing the rangers. This shows that drones are not the only player in this complex issue, but they can be used as a stepping stone to fully solve the issue.

Another example of drones being used for local environments is their use in stopping invasive species. At the beginning of 2020 a bill was passed in Florida that would allow Florida agencies to use drones on public lands to spot and eradicate invasive species such as pythons (Delgado, 2020). Pythons have been a huge problem in Florida as they have eliminated 99% of the native everglade’s mammals like rabbits and foxes, which causes a huge issue in local food webs. This bill can help turn the tide against the invasive Burmese python species in the everglades. Another example of drones being used against invasive species in Wyoming. In 2019, Wyoming formed a task force to work together against invasive plant species, their solution is to use drones that can measure electromagnetic energy and distinguish plants based on this energy (Peterson, 2020). The rate of identifying these invasive species is ninety percent and allows the task force to work faster as they do not need to have people climbing up mountains and walking across long fields. The next step for this project is to equip drones with herbicide “backpacks” that it can spray at individual plants. This will strongly help Wyoming’s effort to stop invasive plant species and also shows how drones can strongly help in stopping plant and animal species that are highly disruptive and nonnative.

A third example of environment helping drones are drones that can plant trees. A company called Droneseed is using drones to plant tree seed pods around the country in areas that have seen heavy deforestation (Mashable, 2017). Around the world, there are three hundred million acres that have become bare due to deforestation in the past three decades. To replant those areas, would cost around one hundred billion dollars in labor and supply costs. “A good tree planter can plant about eight hundred trees a day, which is about two acres. One person with fifteen drones could do the equivalent of three hundred sixty manual labor hours in one day.” One drone has a wingspan of eight feet, equipped with a pneumatic shooter and seven sprayers. The drone flies in a straight line, shooting three seeds straight into the ground, and doubles back respraying them with protective chemicals. With fifteen of these drones per person, it is not hard to see how effective this method can be in stopping deforestation. Chris Devore, of Techstars Seattle, says, “Droneseed is the most important company working today in carbon sequestration through forestry.” Droneseed is an incredibly big player in saving the forests right now that is using drones to fix a massive issue that we are facing. The CEO of Droneseed says, “For me, it makes sense to go out there and focus on the biggest thing that is threatening humanity. If the environment is not working no social, political, or economic system is working.” More recently Droneseed is focusing on forests affected by wildfires (Today, 2020). When wildfires burn down forests, the topsoil becomes torched, making trees very hard to grow. Droneseed is now using their drones to scope out areas where trees would have the highest chance of surviving and drops cubes of soil called ‘seed vessels’ that contain fibers, fertilizers, and tree seeds. Their drone has the possibility of doing these twenty million times in less than six months.

Overall, drones can be extremely helpful in preserving the environment. They can fly around nature parks and stop poachers from illegally killing elephants and hippos. They can be

Reid Dettbarn
Intro to UAS (Geo 270)
Research Paper

used in the fight against invasive species from killing local plants and animals. They can even replant a whole forest after a devastating wildfire. There are countless examples of how drones can be used in the fight against climate change, and there will be a hundred more before the end of the decade, that is why drones are extremely important. Drones are a large part of not only our lives but also the lives of wild animals and native plants, and for the first time in history, it is a good thing that technology is getting mixed in with the local environment.

Reid Dettbarn
Intro to UAS (Geo 270)
Research Paper

References

- BBC News. (2017, October 25). *Can drones stop wildlife poachers?* - BBC News. Retrieved from Youtube: <https://www.youtube.com/watch?v=4Ub0W9PL35w>
- Delgado, J. (2020, June 29). *Gov. DeSantis signs bill allowing drones to target invasive wildlife species.* Retrieved from Florida Politics: <https://floridapolitics.com/archives/344922-gov-desantis-signs-bill-allowing-drones-to-target-invasive-wildlife-species>
- Mashable. (2017, June 6). *How drones are helping to plant trees - a cleaner future.* Retrieved from Youtube: <https://www.youtube.com/watch?v=EkNdrTZ7CG4>
- Peterson, C. (2020, November 26). *Drones, Mites, electromagnetic energy - Wyoming's war on invasives.* Retrieved from Star Tribune: https://trib.com/outdoors/drones-mites-electromagnetic-energy-wyoming-s-war-on-invasives/article_490ac69f-6227-59b9-8b56-b7f6232ae5bd.html
- Today. (2020, January 17). *Drones are helping replenish areas devastated by wildfires.* Retrieved from Youtube: <https://www.youtube.com/watch?v=x-784cGFzY>