BH Wildlife Consultancy

Thermal Drone Survey Information Note/Methodology

This note has been created to inform landowners/stakeholders of the process undertaken when conducting deer population counts using drones. The drones used are typically the medium to larger sized units (4 to 10kg) so bigger in appearance than the standard Mavic units that are commonly used and seen. The larger drones can appear to be louder when flying, particularly in windy conditions when compared to the smaller drone class although their sound is not as high pitched as the smaller drones. The image below shows the typical set up when conducting surveys:

Most animals do not react when hearing or seeing the drone and every flight point is planned with trying to keep as far away from livestock as possible. If any reaction is noted with livestock/horses then the drone is landed and moved away from the area. Substantial buffers are also put in place around residential properties. The CAA authorisations allows the drone to be within 50m of a dwelling but we typically stay >150m from dwellings and infrastructure. It is worth noting that the focus of the survey is to get good imagery of the herbivores present so no images of people or infrastructure is intended. If an image ever did show a person or property then it would be deleted immediately once back in the office.

A specific methodology has been developed for counting herbivore populations with the aim being to capture the minimum wildlife population present, at a given time, quickly and effectively when compared to other terrestrial techniques available.

Thermal Imagery relies online-of-sight for detection but there are planning considerations that can improve efficiency and confidence when surveying. Planning and experience from

people on the ground ultimately provide higher confidence levels on the data/output that is backed up by high-definition photographs that are date/time and location stamped within the images meta data. Most of the time the drone operators will be accompanied by a local coordinator, especially if areas are congested and busy with members of the public. The surveys can take place at any time but normally dusk and dawn are preferred. The best way to maximise survey coverage is to lay 1 km diameter circles over the area and identify suitable take-off/landing points. This requires clear air space to always allow visual line of sight of the drone.

Generally, when counting in woodland, all the counting will be done within the 1 km circle by the drone in a methodical way. Whilst the drone is legally limited to flying within the 1km circle under the CAA operational authorisation, the onboard TI camera can pick up heat sources over 1.5km away from the plot. Most of the flight points are undertaken next to/near the pickup but on occasion it may be necessary to walk away from a path/road to create visual line of sight. ATVs, boats and other transport means are also deployed in areas which lack good access tracks. This is only ever done with permission from the landowner and under their instruction/guidance.

No video footage or images from surveys will be released, shared or made publicly available unless this has been agreed with the landowners in question. Information of the survey results for individual properties is made available to those owners/agents signed on to the project.

An example of the sort of image taken during a census is shown below. The top left shows the thermal imaging camera spotting the heat source, the top right is the wide angle showing where the deer are located and the bottom image the deer.

The aim of these surveys is to create maps and a report detailing the densities of the deer species present across the landscape.

Ben Harrower (BH Wildlife Consultancy) bhconsultancy@outlook.com