GREY PARTRIDGE (PERDIX PERDIX) POPULATION SURVEY WITH THERMAL IMAGING DRONES - AN EXPERIMENTAL STUDY

László Beier [1], Ferenc Jánoska [2]

[1] University of Szeged, Faculty of Agriculture, Institute of Animal Sciences and Wildlife Management, HUNGARY
[2] University of Sopron, Faculty of Forestry, Institute of Wildlife Management, HUNGARY

Abstract: *Researchers from the University of Szeged, ABZ Drone Ltd., and the Hód-Vad Hunting and Nature Conservation Association performed a study to search Grey Partridges in dense vegetation using drones equipped with infrared and thermal cameras. This innovative approach was designed to assess the capability of UAV technology under challenging conditions. The method could have an important role in the future but needs further development.*

INTRODUCTION

UAVs (Unmanned Aerial Vehicles) in ecology are relatively new, although aerial photography from traditional aircraft has been used for decades to study land cover. Aerial observation has opened up new perspectives in geography, hydrology, botany and zoology. Drones are becoming more and more popular in wildlife biology research. These devices are effective for monitoring populations, searching for nests and even tracking. However, the technology is becoming increasingly accurate, the method is still prone to error.

MATERIAL AND METHODS

Study-area: 3545 ha with a partridge population of around 300 individuals. Preliminary bio-acoustic surveys were carried out from February 2024 to locate responding individuals using the Locus GIS programme. Drone flights were conducted at night (10 pm) and in the early morning (4 am), covering 200 hectares of different type of vegetation. Drones: DJI Mavic 3 Enterprise Thermal, DJI Matrice 350, DJI Zenmuse H20N, Yuneec H850 E20TvX, equipped with thermal cameras and laser telemetry.

RESULTS

- The study confirmed that drones can effectively detect partridges even in dense vegetation.
- High-quality photographs were taken of seven partridges, demonstrating the potential of drones for wildlife monitoring.
- Challenges such as bird movement and rapid relocation were identified, indicating the need for improved error management.
- The success of this study suggests that drones can play an important role in monitoring ground-nesting birds, counting nests and studying habitat preferences.
- Further research is needed to refine the methodology and address challenges such as false positives and short operation times.
- Using artificial intelligence and developing standardised assessment protocols could improve the accuracy of drone-based wildlife monitoring.
- The study highlights the potential of drones to contribute significantly to wildlife biology research, providing a less intrusive and more reliable method compared to traditional ground surveys.
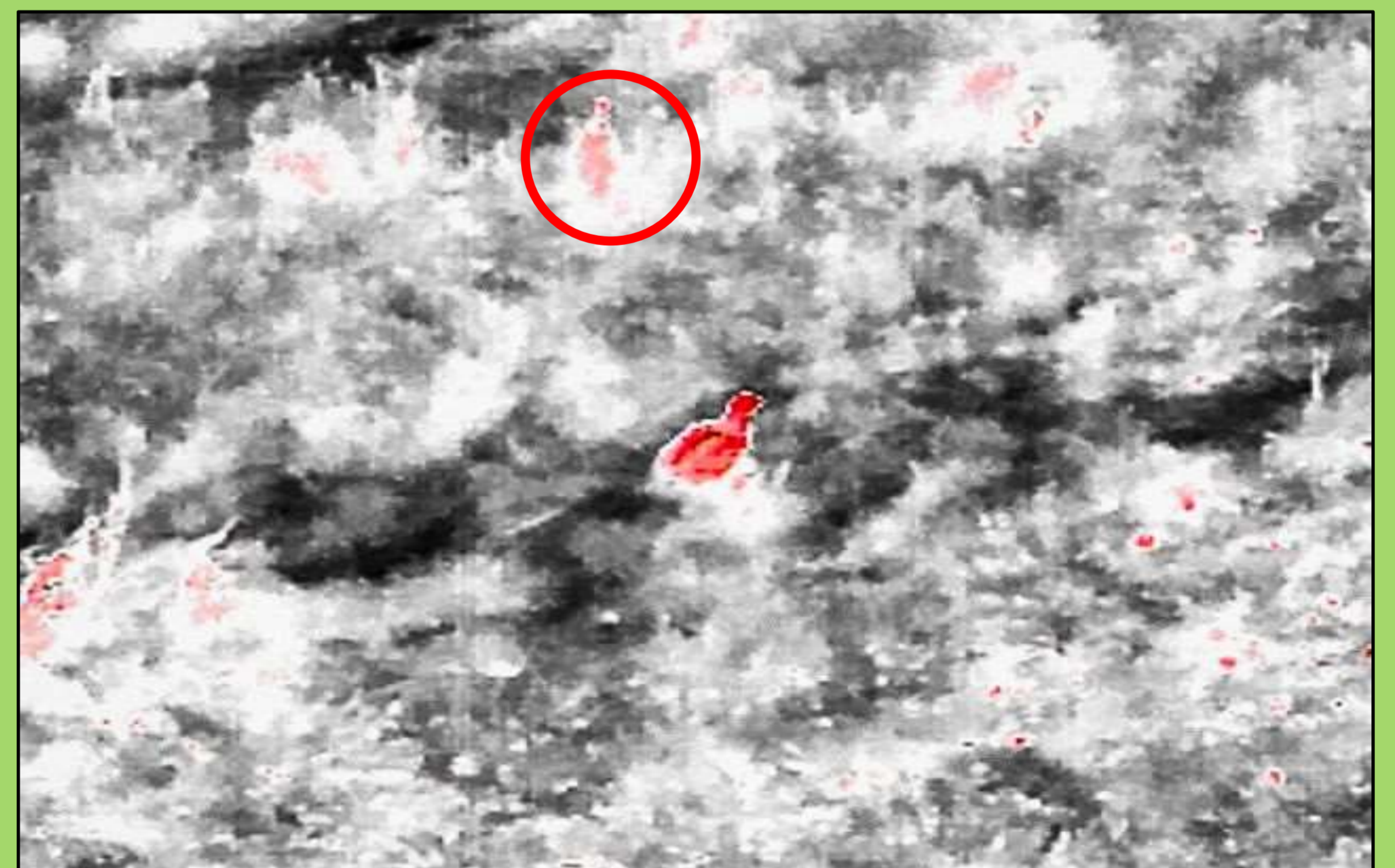

Figure 1: Thermal photos of Grey Partridges in different vegetation (photo: Barnabás Martinez)