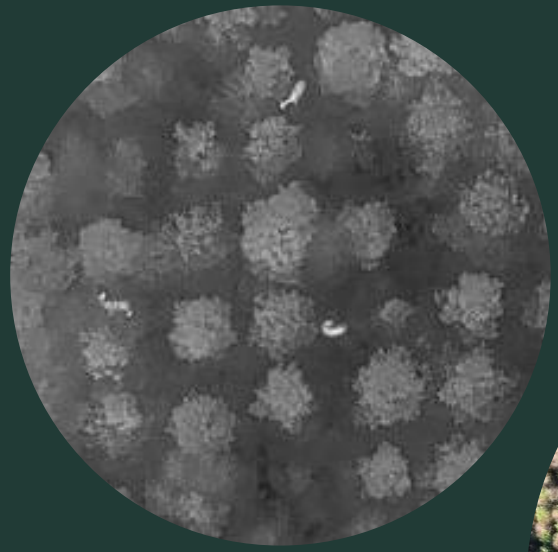
Using thermal imaging drones to count deer in woodland

The story so far…



BH Wildlife Consultancy

The drones….

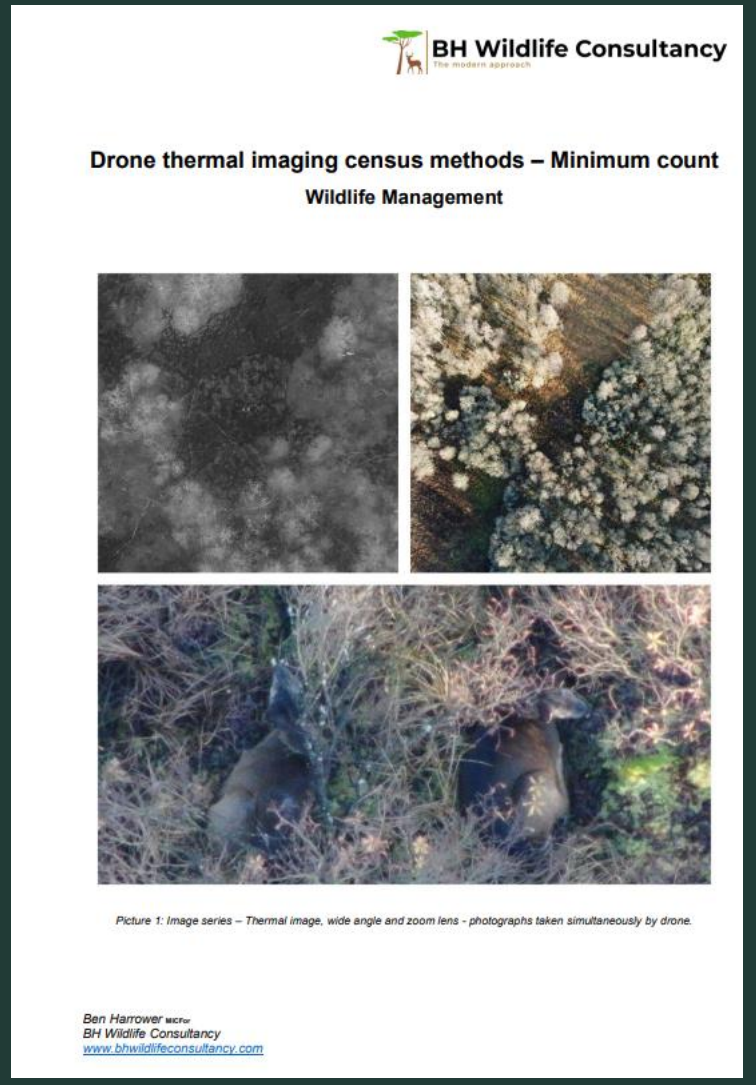
- There's at several drones easily available.
- Highest spec has 3 cameras; TI, wide angle and zoom lens.
- Built in laser range finder on some models
- Ability to operate in wind and rain.
- Battery life main constraint.
- Upkeep and maintenance costly and time consuming.
- Heavily regulated when flying ‘commercially’.

The operators….

- GVC
- A2 C of C
- Operational authorization
- Flyers ID/Operators ID
- Risk Assessment
- Method statement
- Checks with Drone Apps
- NATS – liaison with airports etc
- CPD – keeping hours up
- Maintenance of equipment

Methodologies

- Scottish Forestry – approved first method in May this year.
- Minimum count has limitations depending on the structure of the habitat and size of the site.
- Other methods being looked at with NatureScot and Forestry Commission England project (Lincolnshire).



BH Wildlife Consultancy
The modern approach

Drone thermal imaging census methods – Minimum count

Wildlife Management

Picture 1: Image series – Thermal image, wide angle and zoom lens - photographs taken simultaneously by drone.

Ben Harrower MICFor
BH Wildlife Consultancy
www.bhwildlifeconsultancy.com

Minimum count

- You attempt to count all of the ground as you can in a methodical way to avoid under counting and double counting.
- If in doubt – don't count…
- This provides a 'snapshot' of density and distribution at that given time.
- When compared to other methods – time saving, efficient (one person) and repeatable.
- The results are geo-referenced and time/date stamped meaning that the images are true evidence of the population present at that given time.

Plot based counting – Muntjac? Sika?

The census….

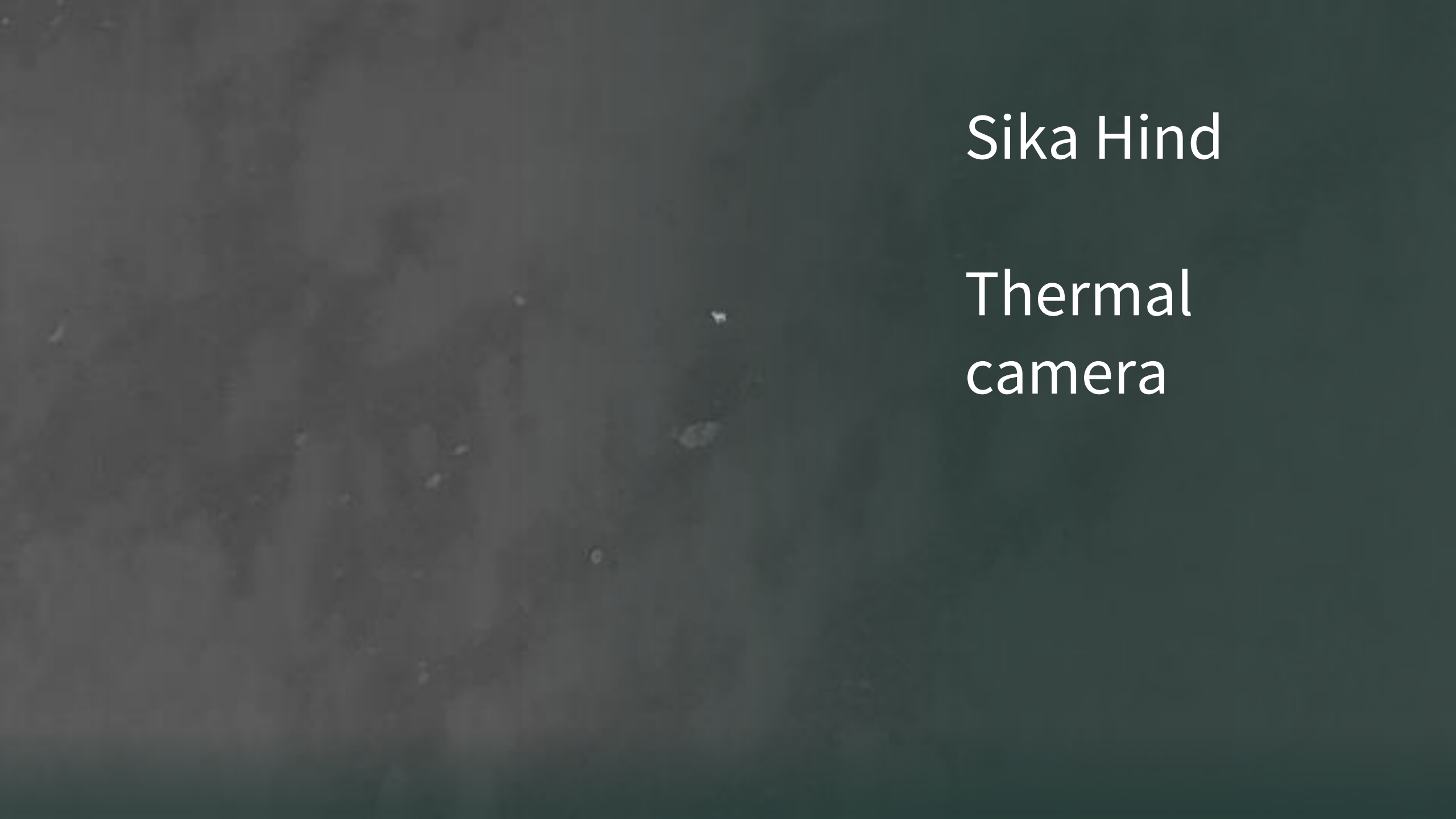

Flanders Moss - December 2021 - TI drone count
Legend
FLS
Red_deer_TI_Count_Dec2021
1
5
10
1:35,000


Flanders Moss - May 2022 - TI drone count
Legend
FLS
Red_deer_count_no
1
10
100
1:35,000


Red Stags
Thermal Camera


Wide angle


Zoom


Sika Hind
Thermal camera


Wide angle

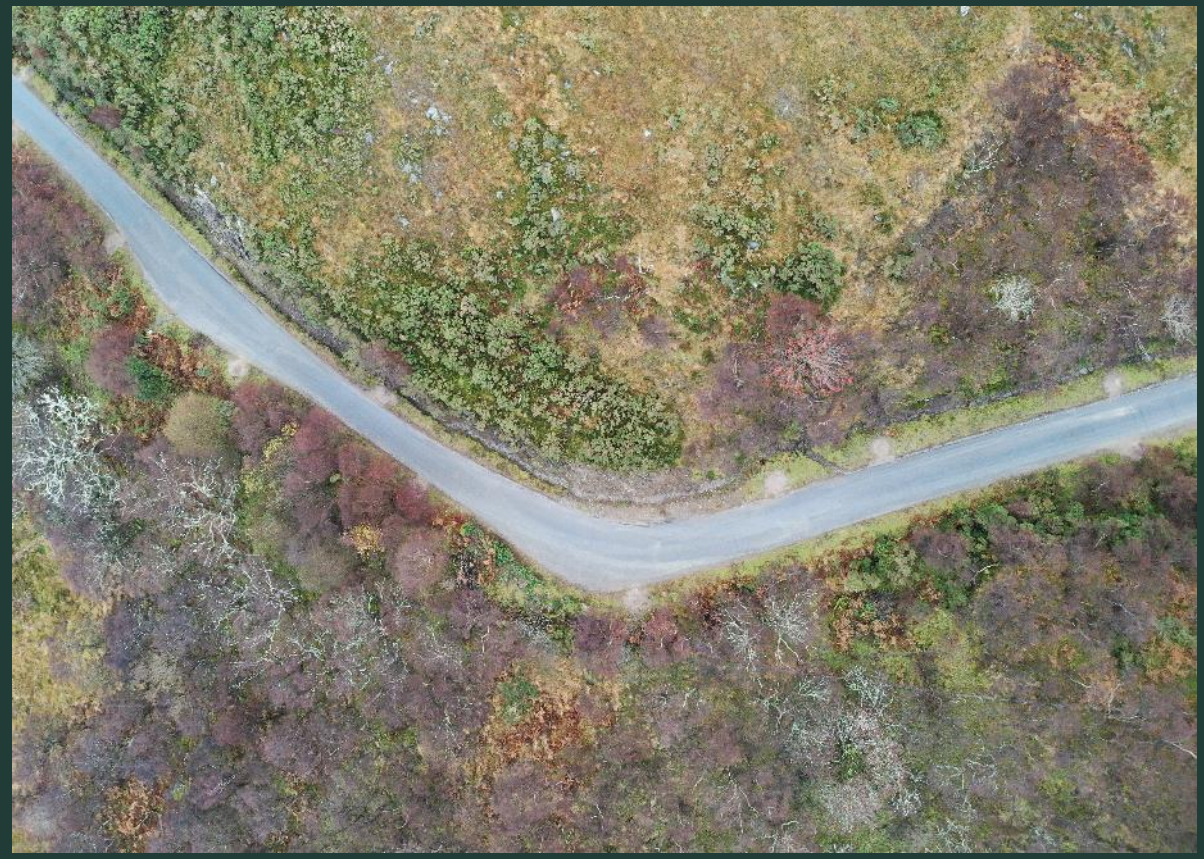

Zoom


Fallow Deer
Thermal
Camera


Wide angle


Zoom

Secretive Sika!



Secretive Sika!

Reviewing the evidence

A few fallow

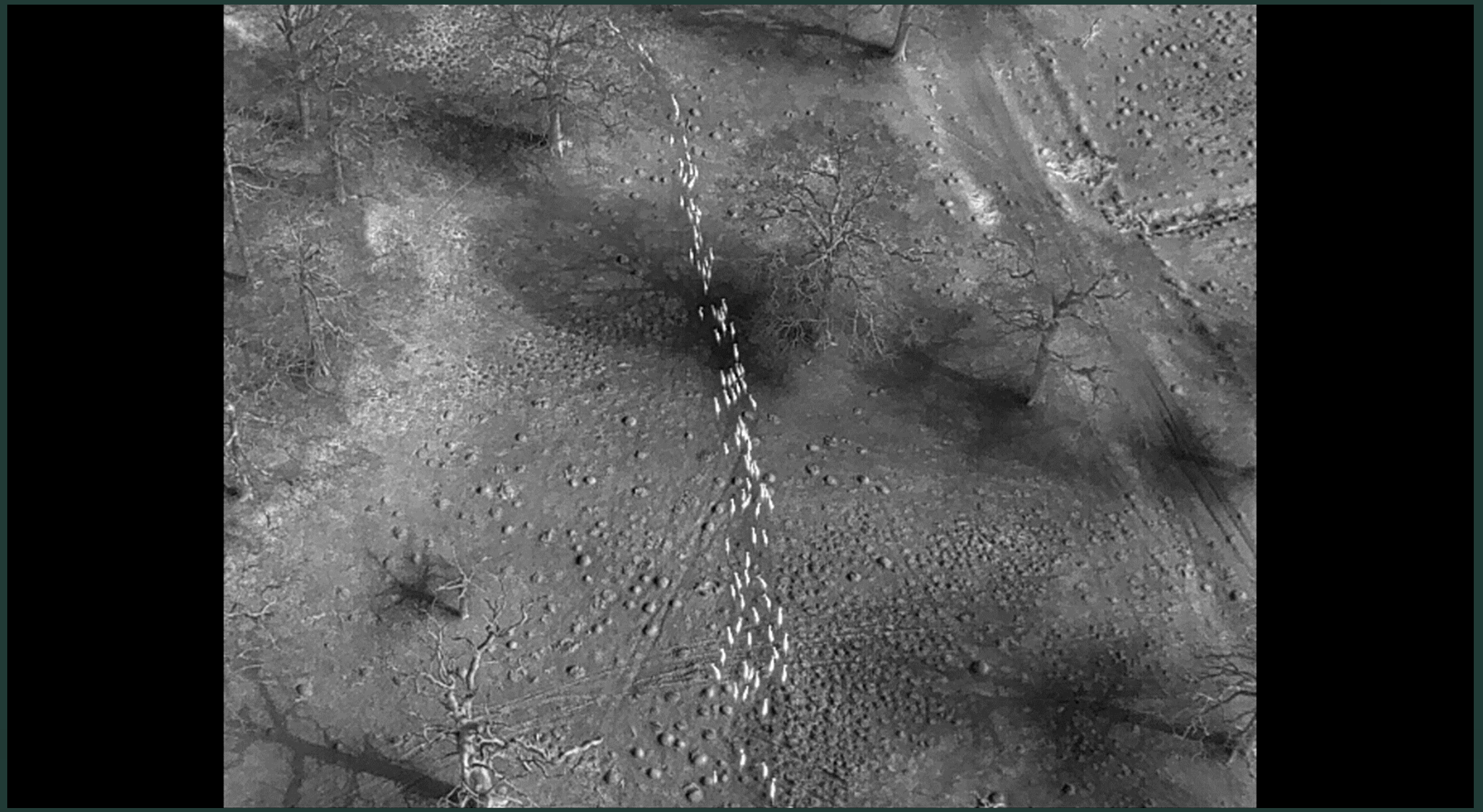
Calibration in deer parks

Waiting for approval to publish figures but essentially three species surveyed in 1,000 hectares.

- Sika – number counted slightly less than foot count
- Red – figures exactly accurate to a single deer
- Pere David – more than suspected

Repeat counts on different species to continue this year.

Calibration in deer parks



Future

- Improved methodologies
- Better thermal imagery
- Longer battery life
- Smaller drones
- Artificial Intelligence….
- Its just the beginning