

Focal species aerial survey in ecotox field studies – a near future technique?

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PROJECT GOALS

- Implementation of a method to define focal species for medium sized wild mammals (e.g. rabbits & hares)
- Assess the usability of UAV's*, equipped with thermal image cameras, to survey wildlife by aerial transects

ADVANTAGES

- Observations are independent from the terrain. Animals cannot hide in depressions or behind hedges and similar structures
- Pre-defined transect routes covering a known area allow animal abundance comparisons between different crops or on a landscape level
- All observations captured as pictures or video can be saved as GLP data and reanalysed any time by the use of tier3 solution's image software for (semi)automatic data analysis

THOUGHTS

- There is a trade off between better animal determination at low altitudes and lesser animal disturbance flying at higher altitudes
- Future development of IR sensors in thermal imaging drones will make them more suitable for detection of rabbits or hares in different crops



Figure 1. An UAV, equipped with a thermal image camera, on a flight over a freshly emerged oilseed rape field to detect European Brown Hares



Figure 2. A 'mission' – a computer defined transect – can be transferred to the UAV's remote control and the device will fly autonomous, recording with its camera videos or (overlapping) photos

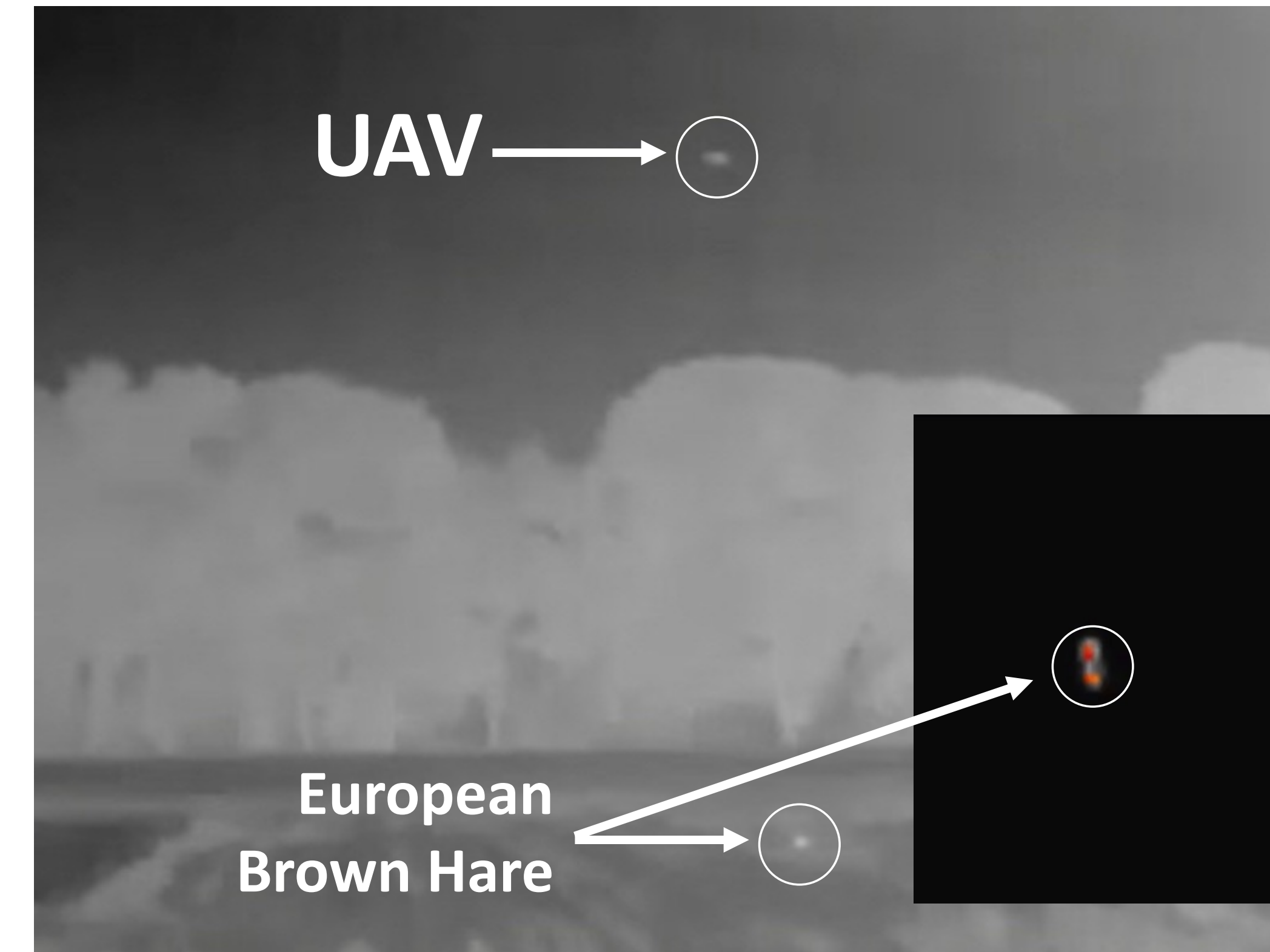


Figure 3. UAV 20 meters above a European Brown Hare – picture taken with a handheld thermal image camera from the field's edge – and the view from the UAV

CONCLUSIONS

- First test-missions showed the capability of today's semi-professional UAVs to identify and count medium sized mammals on pre-defined transects from the air
- Near future development in thermal imaging drones (or the use of available full professional larger UAV's) will allow a low invasive all terrain lagomorph survey independent from the limitations of ground observations



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*) UAV: unmanned aerial vehicle = 'drone'