UNIVERSITY of GREENWICH

Investigating use of artificial nest boxes positioned at different heights on trees and in isolated positions by dormice (*Muscardinus avellanarius*): the implications for current survey guidelines.

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The Research Idea

Mixed groups of students from a diversity of backgrounds always made for lively discussions, particularly when in the field combining dormouse license training with botanising.

Where were nests before we put up boxes?

Where do the brown leaves come from?

Does reduction in box occupancy = decline?

How often do dormice come to the ground?

Was occupancy influenced by existing boxes nearby?

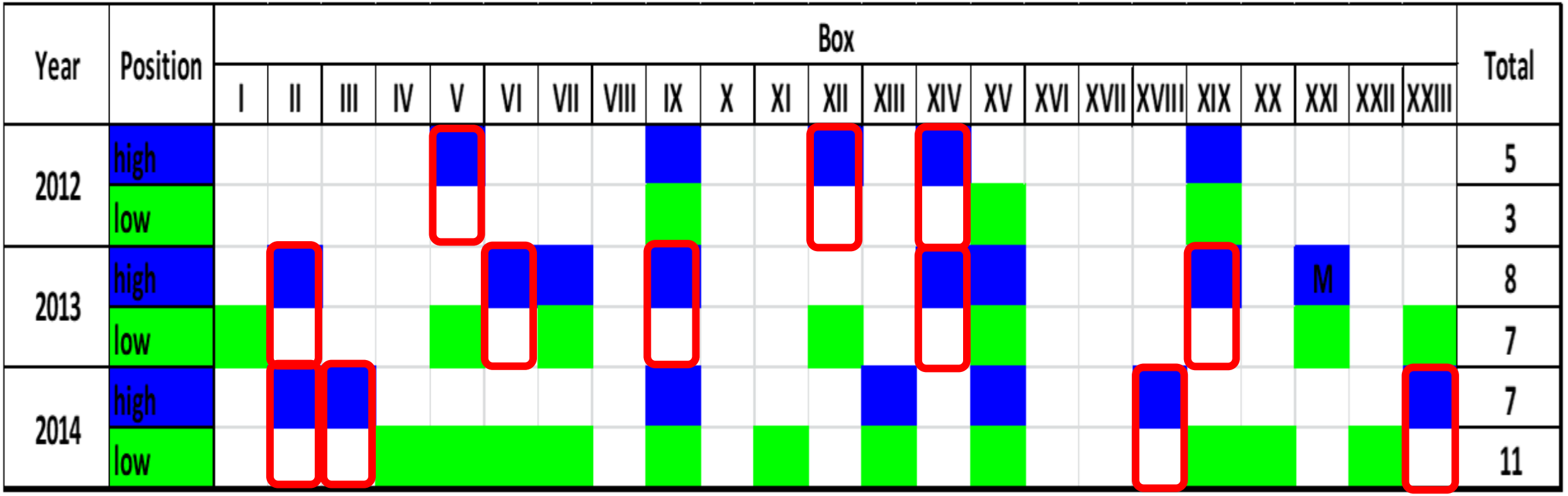
How effective is current ‘good/best practice’ survey methods in determining presence/likely absence?

Student discussion generates more questions than answers!

High Box Research: Phase 1

- 23 artificial nest boxes 1.4m above ground
- paired with high boxes, between 3 and 14m.
- some trees had an additional mid-height box.
- Total 49 boxes on 23 trees

This research was only possible as two MSc students were arborists and qualified tree climbers



12 Dormice would have been missed if only standard boxes had been used.

How often do dormice come to the ground?

Experiment

- Picked green leaves
- Placed in dormouse box
- Observed monthly
- Go grey/green not brown
- This only happens in autumn as chlorophyll breaks down

High Box Research: Phase 2

- RQ1 to establish the extent to which dormice, considered to be mainly arboreal during the active season, will use artificial nest boxes at standard height, higher in the canopy or placed in isolation on a post so they can only be accessed from the ground .

- RQ2 was to explore the anecdotally reported trend that artificial nest boxes are more frequently used when newly erected with occupancy tending to decline in subsequent years. If this is the case, then the apparent decline in dormice in the long-term monitoring scheme may be a function of survey method rather than population.

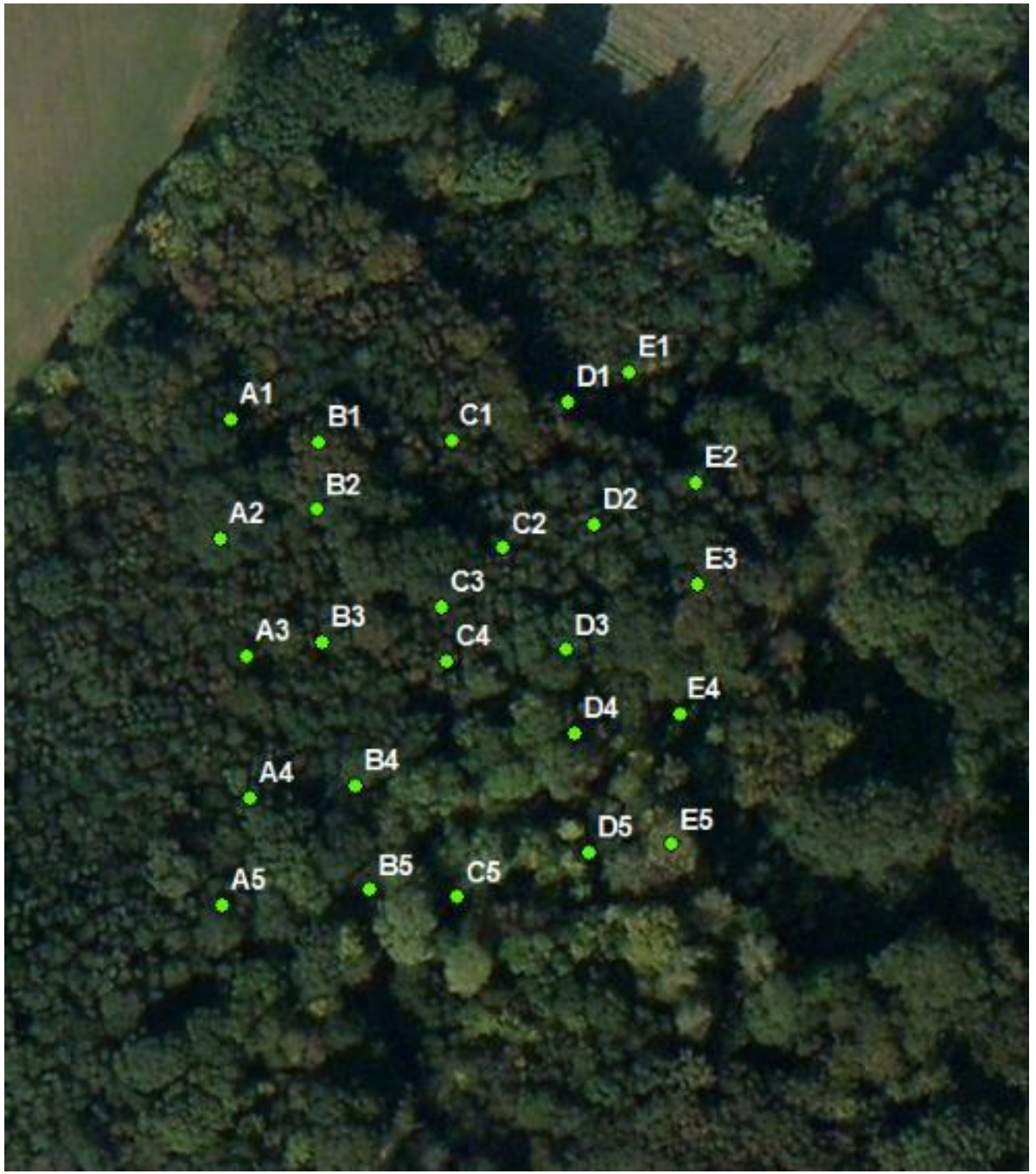
- 5 lines, each with 5 points
- 3 boxes at each point

  H=high box

  S=standard 1.4m box

  P=box on post

- Total 75 nest boxes



Climbable trees with arboreal connectivity

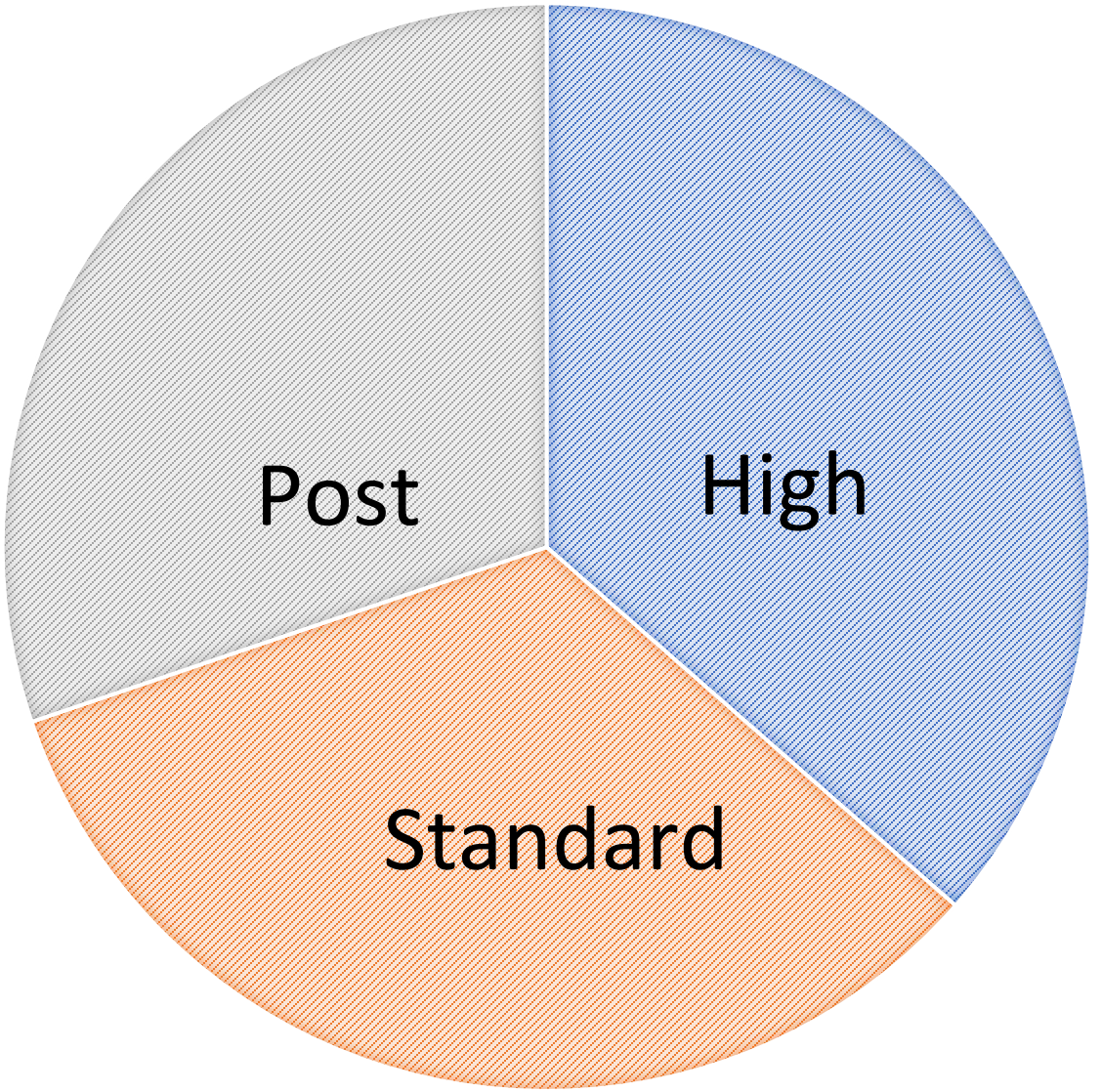
Isolated box on a post


Husqvarna

Dormice and nests observed
(does not = equal number of individual dormice)

	2017	2018	2019	2022	Overall total
HIGH BOX Dormice	4	8	4	1	17
HIGH BOX Nests	3	9	2	4	18
STANDARD BOX Dormice	0	4	3	1	8
STANDARD BOX Nests	4	14	4	2	24
POST BOX Dormice	1	10	0	0	11
POST BOX Nests	0	9	8	1	18
TOTAL Dormice	5	22	7	2	36
TOTAL Nests	7	32	14	7	60

Use of artificial nest boxes in different positions



What does this mean?

- Total evidence of use: high 35; standard 32; post 29
- Dormice definitively come to the ground
- Boxes at standard height may well miss dormice
- There seemed to be a tail off in use over 5 years

Does reduction in box occupancy = decline?

- Dormice must have been present before artificial boxes were put up
- Novel – curiosity factor
- Assessing trees for nest potential - difficult
- Restricting use by birds
- Is it due to parasite loading?

So why does it matter?

- Accurate determination of whether dormice are present on a site has
  - Ecological
  - legal and
  - practical significance.

- Bullion and Looser (2022) have also questioned current survey methods in dense woodland with evidence of high risk of false negatives.

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https://appliedecologistsblog.com/2024/06/18/up-in-the-trees-research-into-dormouse-survey-methods/

So how can we do better?

Can dogs determine presence?

Research partnership

now in with 4th year with

‘Paws for Conservation’

The captive breeding collection controlled conditions

So where are we now?

RESEARCH QUESTION	TIME PERIOD	COMPLETED
Proof of concept: can operational bat carcasses detection dogs find dried bats of various species?	Late 2019/early 2020	YES
Can dogs discriminate between freeze dried dormice and other freeze dried small mammals under training conditions?	Ongoing 2022	YES
Can dogs trained on freeze dried dormice detect live animals?	January 2023	YES
Can dogs trained on freeze dried dormice detect live animals and discriminate between these and other live small mammals?	January 2023	YES
Can dogs trained on freeze dried dormice detect hibernating dormice? • In controlled conditions? • In woodland known to have an active dormouse population?	January 2023 Ongoing	YES

So how much do we really know about dormice?

Are we surveying and monitoring them accurately?

Does the method need review?

What is the best conservation strategy to benefit dormice?

If you have any questions please email d.bartlett@gre.ac.uk