5th International Swift Conference
Tel Aviv, 11th – 15th March 2018

What do we know about Swifts' nest boxes?

Dick Newell, Action for Swifts, Cambridge, UK

1908: RSPB Swift box, 2 shillings

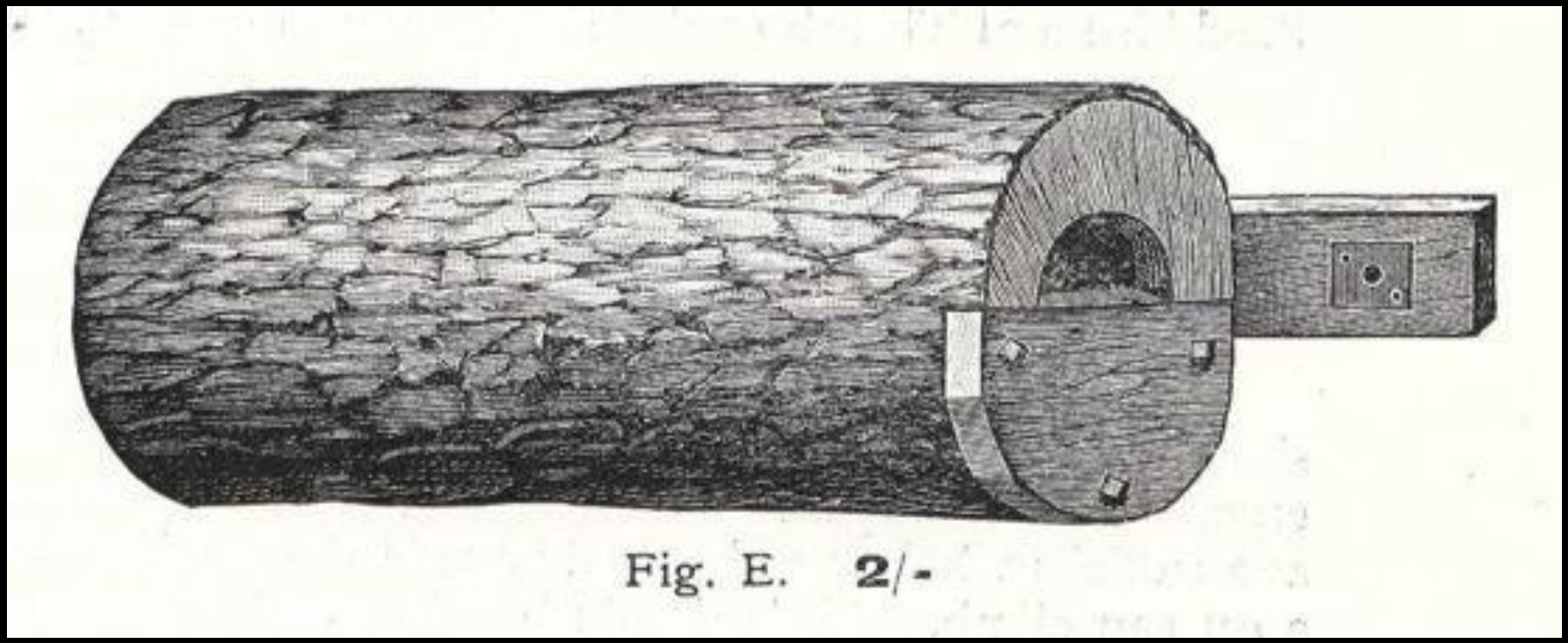
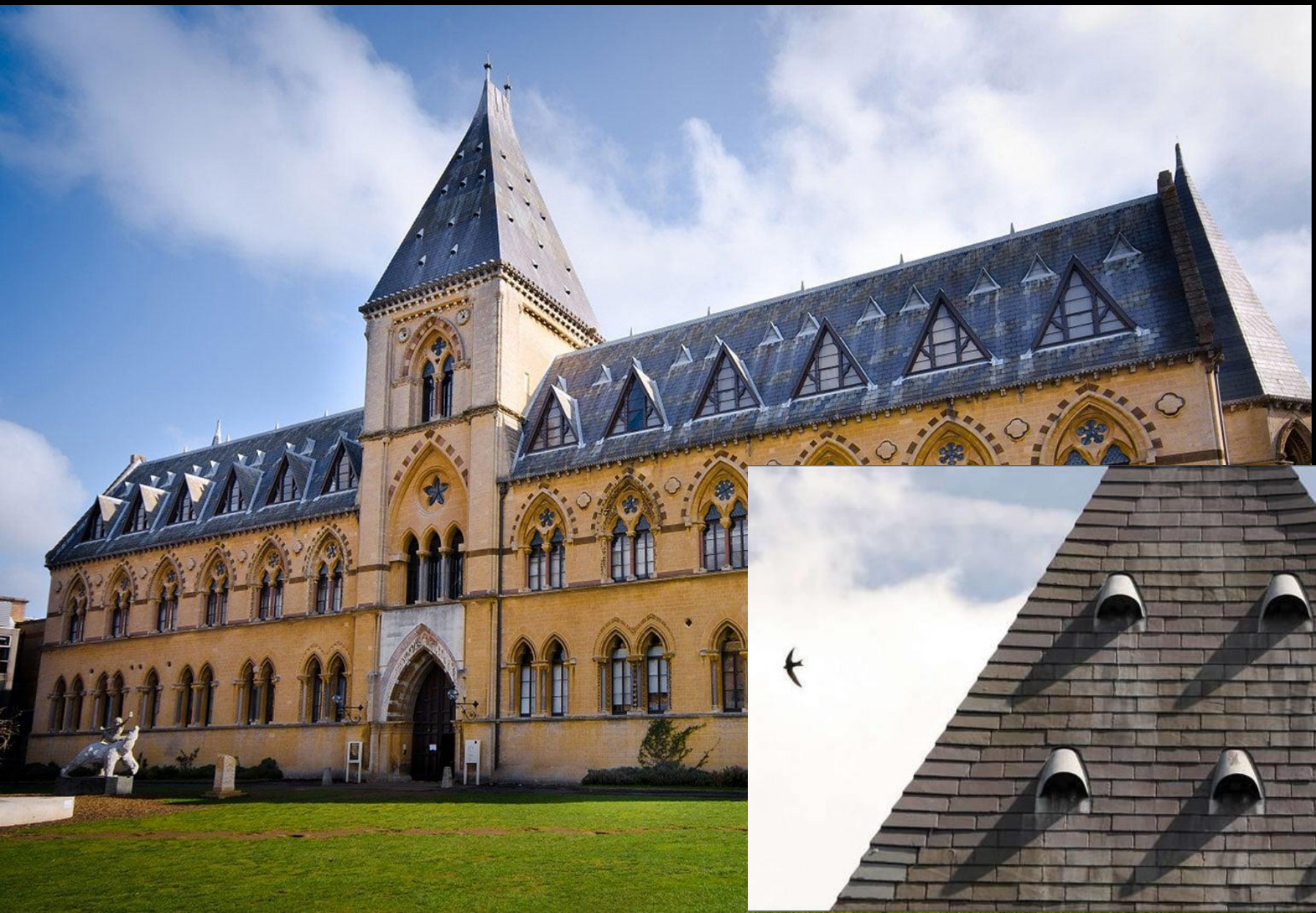


Fig. E. **2/-**

The Hirsel Swift box 1950

Oxford University Museum of Natural History



2017: Things that have worked well

Churches

Churches

Things that have not worked so well

Two questions

1. What is the optimum Swift nest box?
    a. Position
    b. Design

1. Where are the limits?

What is optimal?

Maximum occupancy rate
Maximum productivity

Number of opportunities x occupancy rate
Number of opportunities x average productivity

Common advice

Higher than 5 metres

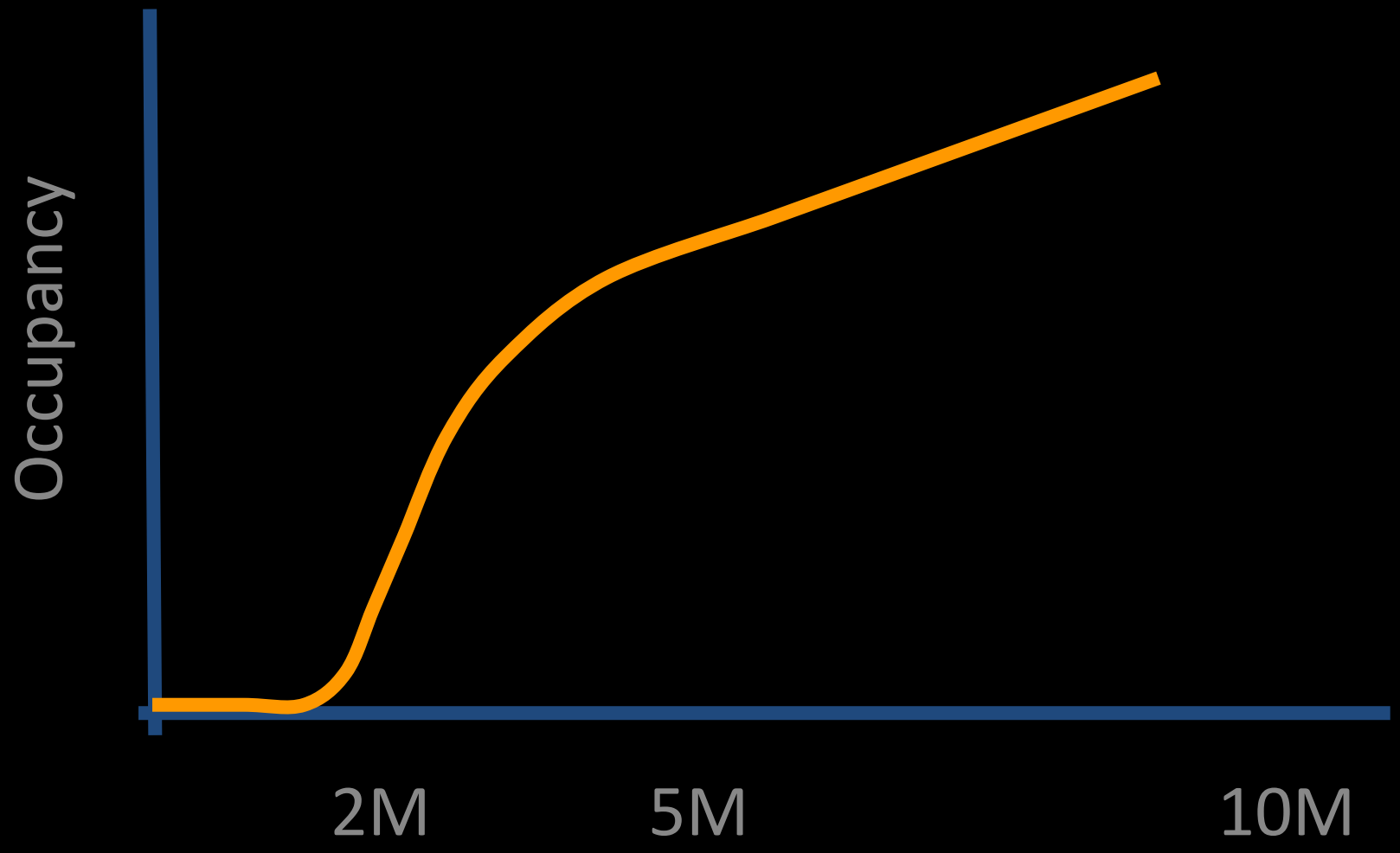
Not on south-facing walls

No obstructions

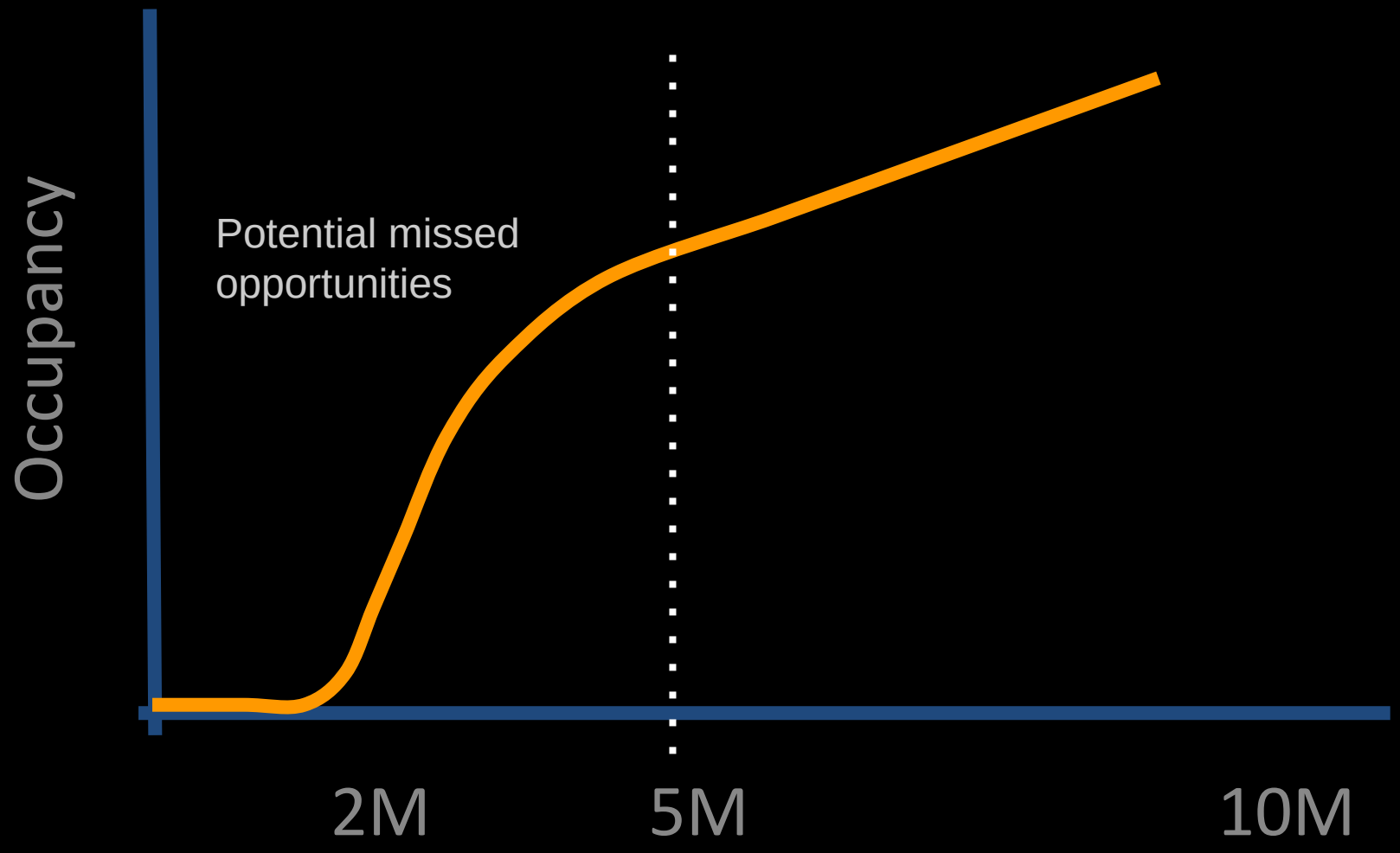
walls/trees/wires

Better with Swifts already present

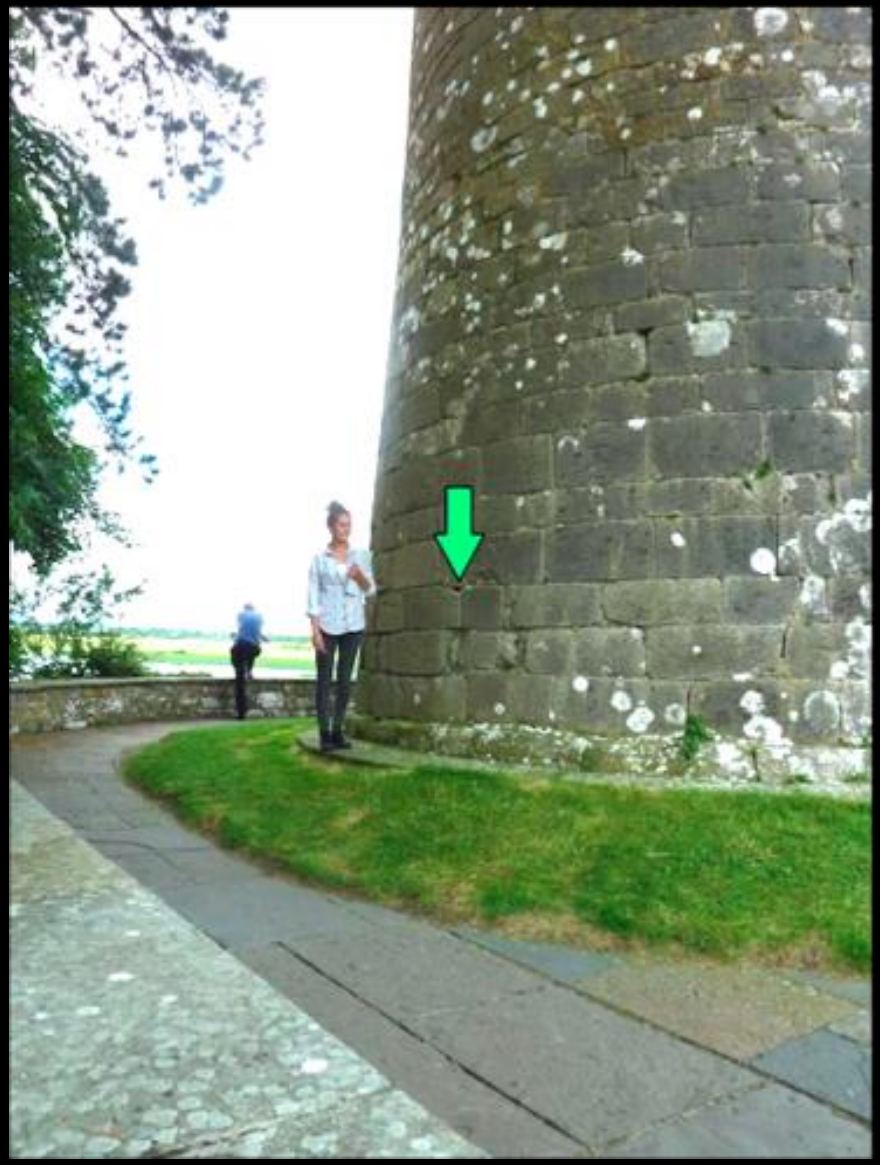
Occupancy vs Height



Occupancy vs Height



Clonmacnoise photos Birdwatch Ireland



St Huberts Church, Idsworth

Photo Hampshire Swifts

Zeist temperature experiment

Swiftbox in the sun 2013

2 pairs of chicks raised 2013 - 2017

Model 30

Nest box parameters

Larger is better?

Headroom?

Entrance size?

Entrance shape?

Entrance orientation?

How do we find the optimum?

Survey existing nest sites

Perform controlled experiments

Tonio Schaub et al 2014

Sample size: 477 nest boxes

Occupied: 116 (24.3%)

Box types: 7 (5 Schweglers, 2 Strobel)

8 Variables:

Box type, no of Neighbouring boxes, absolute height, height relative to roof edge, manner of installation, orientation, box age and city district

Tonio Schaub et al 2014 Conclusions (what Swifts prefer)

Mount boxes a few metres apart

Close to the roof edge

North-facing facades

Above 11M

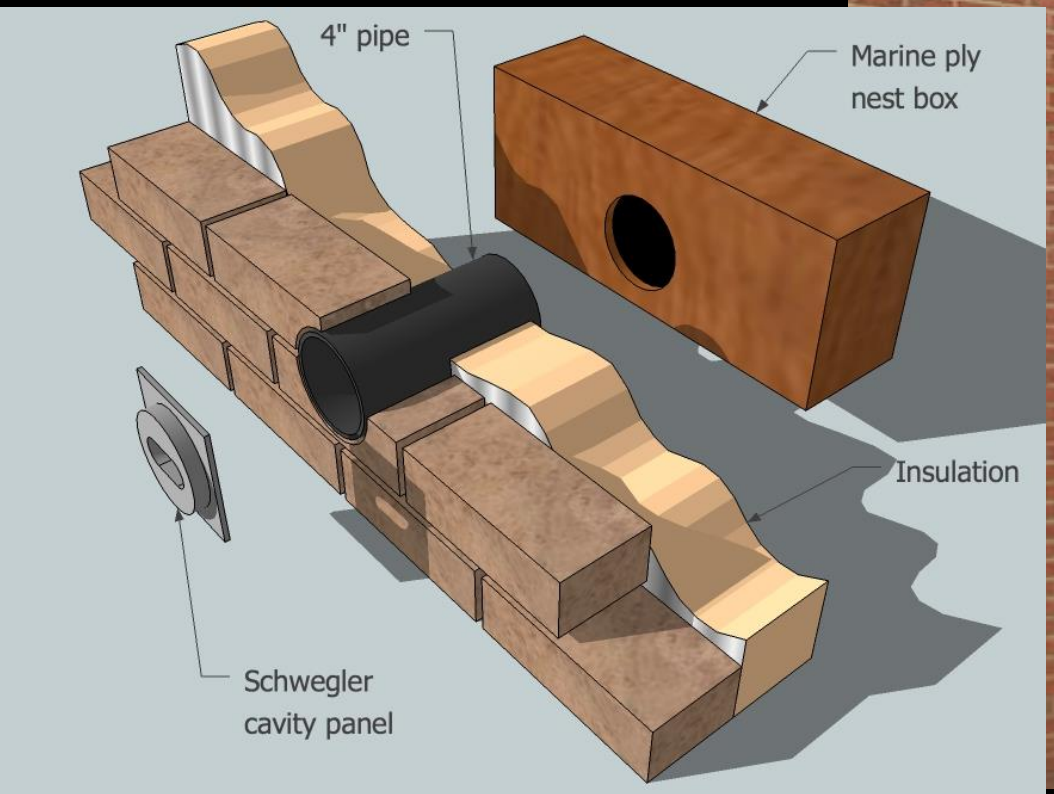
Schwegler 17 single boxes preferred to Schwegler 17a treble box

External preferable to internal

Fulbourn external boxes

Schwegler 1MF

Fulbourn Internal boxes



Fulbourn statistics

		2012	2013	2014	2015	2016
Internal	Available	111	139	159	186	186
	Occupied	26	51	72	83	84
	%occupied	23.4%	36.7%	45.3%	44.6%	45.2%
Schwegler 1MF	Available	46	88	98	108	108
	Occupied	1	3	4	4	5
	%occupied	2.2%	3.4%	4.1%	3.7%	4.6%
Total	Available	157	227	257	294	294
	Occupied	27	54	76	87	89
	%occupied	17.2%	23.8%	29.6%	29.6%	30.3%

The problem of confounding factors

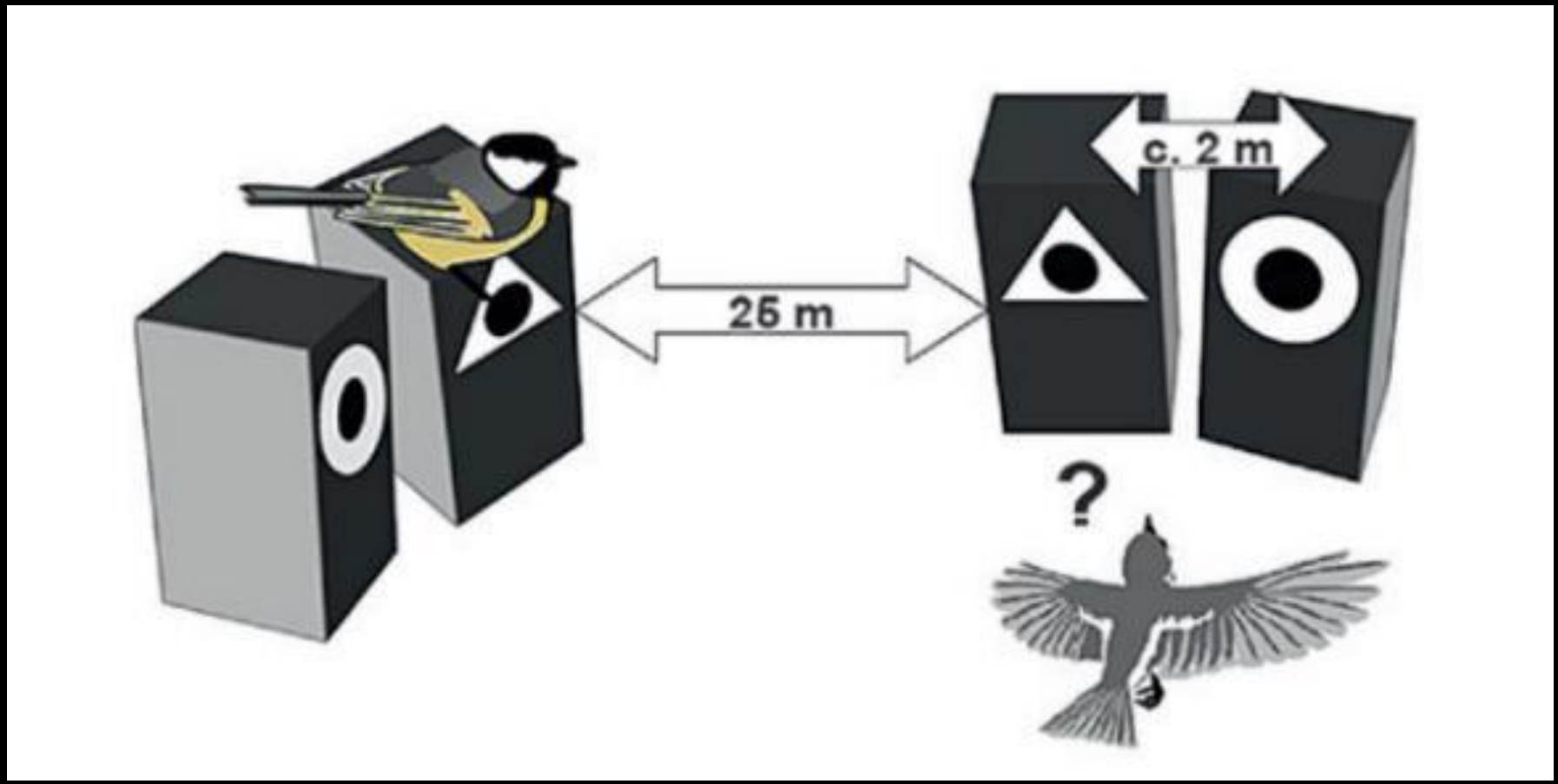
Habituation & founder effects

- what do Swifts expect?

Poor randomisation of sample

Small sample size

Great Tits and Pied Flycatchers



Seppänen and Fordman 2007 & 2010

Ely Maltings

Ely Maltings 2009

Ely Maltings 2012

F1 G1G2G3H1H2H3H4 I1 I2

10 boxes
installed 2009

Ely Maltings 2013

The Need for well-designed Experiments

2017: Nest concave statistics:

P = 0.4%

Common odds ratio 4.7

	Boxes	Occupied	With concave	No concave	P
St Mary's Ely	24	10	7/12	3/12	10.7%
All Saints Worlington	18	6	5/9	1/9	16.7%
Oxford Museum Tower	52	6	3/12	3/40	12.7%

New concave experiment

St John's church, Bury St Edmunds

Minimum Headroom?

Retrofitted nest boxes

~1980: Chris Mead, 4 Beaconsfield Road, Tring

4 Swift Chicks

Photo: Judith Wakelam

Small box experiment

Floor 15cm x 22cm, headroom 7.5cm

3 pairs of boxes on 3 houses

4 boxes with breeding pairs in 2017

More headroom experiments

Headroom Experiment

Things we think we know

- Spaced out boxes better than dense clusters
- Nest concaves are a good idea
  - More likely first time breeding
  - Less likely to eject eggs
  - Higher occupancy rate
- 65mm x 28mm entrance excludes Starlings

What we don’t know

- Do Swifts have a preferred entrance direction?
- Do Swifts prefer one entrance shape over another?
- How is occupancy rate affected by floor size and headroom?
- Does interior size impact on the number of chicks fledged?

Questions you can help answer

Floor area: try 2 sizes with a false partition
e.g. compare 30cm x 10cm with 30 cm x 15cm or 30cm x 15cm with 25cm x 15cm

Headroom: try 2 heights with a false ceiling
e.g. 7.5cm and 15cm

Entrance shape: Compare rectangle with obround

Dark vs light (unpainted) interiors

Methodology

Keep everything constant except for 1 parameter.

You are forced to put boxes in different positions, so alternate boxes to reduce as a confounding factor.