Open Farm Sunday Pollinator Survey: Engaging people in recording insects on farms

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Aims

- Engage and educate people
- Long-term monitoring project
- Effect of local landscape on bee abundance

- 3 contexts
  - Crop
  - Farm type (arable, livestock, mixed)
  - Local landscape within 1km

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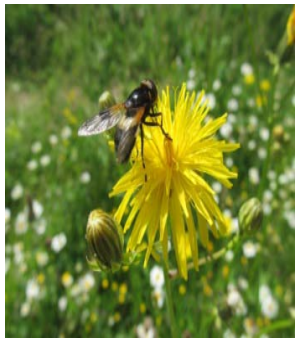
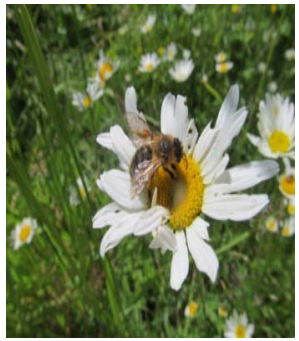
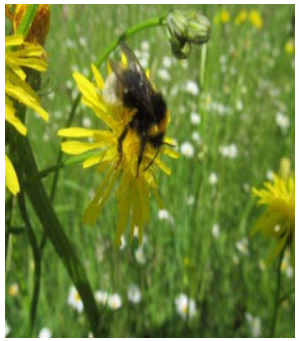
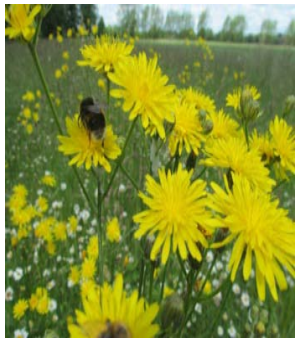
Hypotheses

- Insects counts will be higher on non-crop habitats than crop habitats
- Insect counts will vary between farm types and depend on availability of floral resources
- Insect counts lower on farms with a lower percentage of natural habitat within 1km

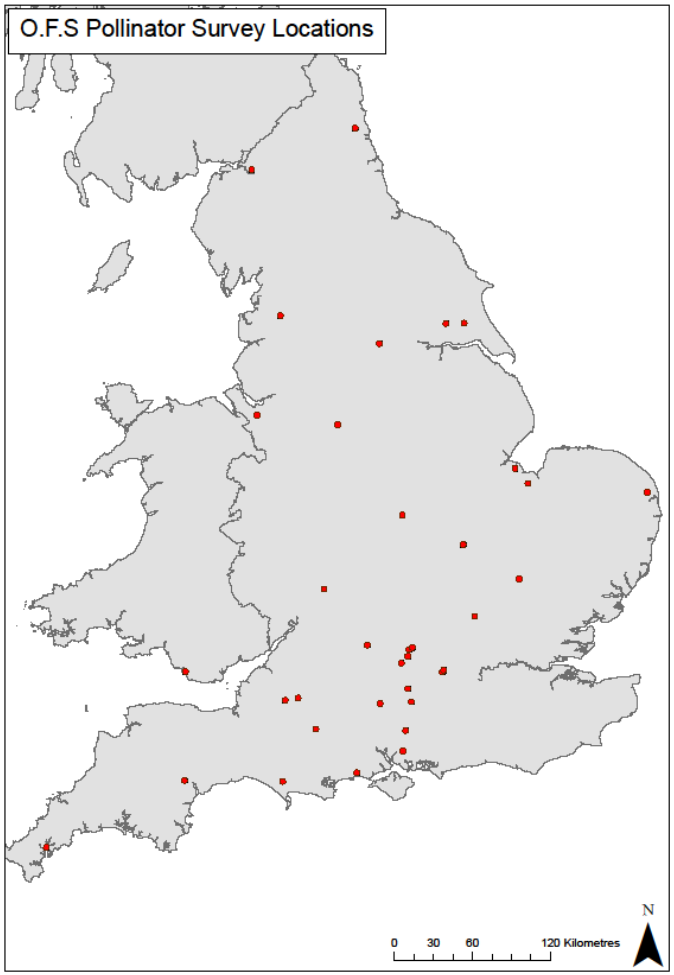
Methods

- Paired sample sites; crop and non-crop habitats
- 2 x 2m
- Weather
- % Floral cover
- 5 minute observations

Survey Overview

- 36 farms
- 23 counties
- 631 participants

- 16380 insects recorded
- 6738 insects on crop
- 9642 on non-crop



Courtesy of J Redhead, 2012

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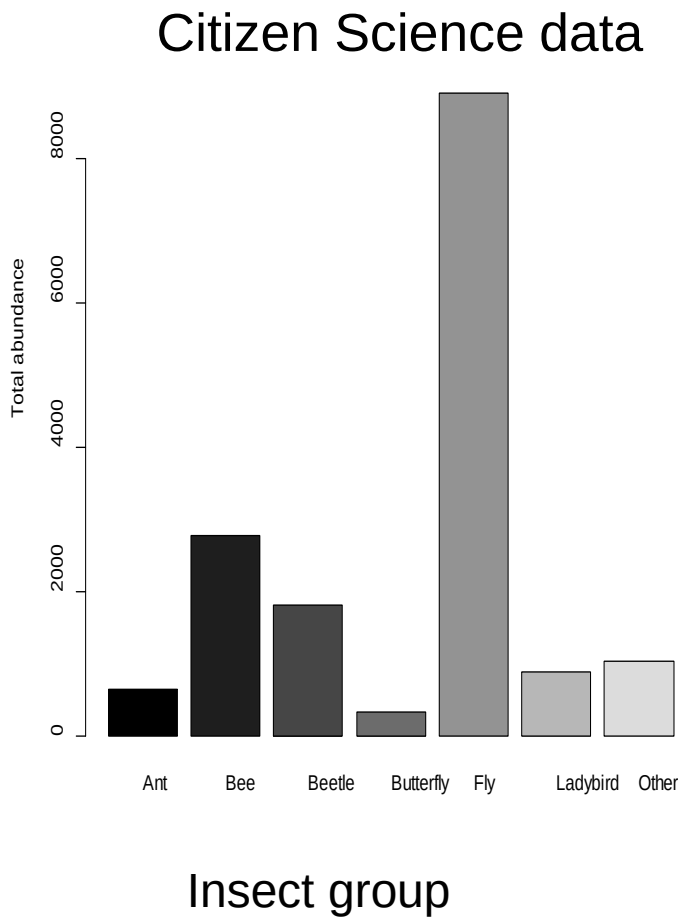
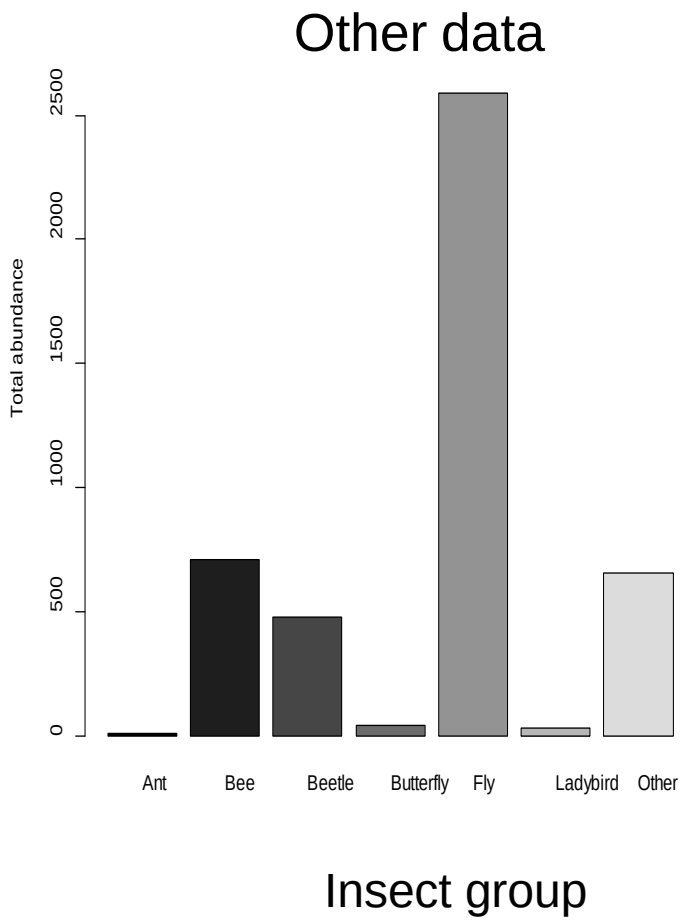
Citizen science data and data collected by experts were very similar





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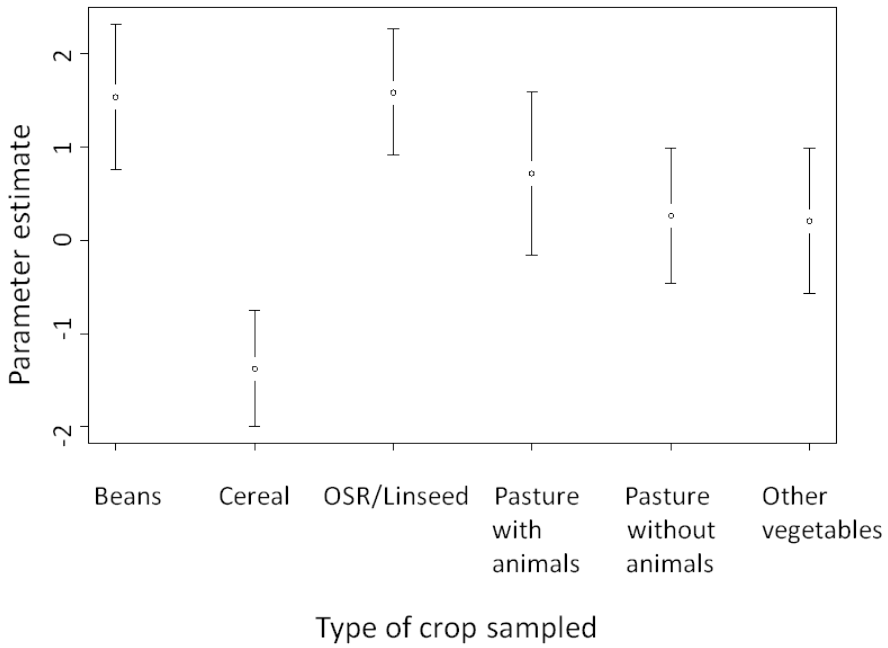
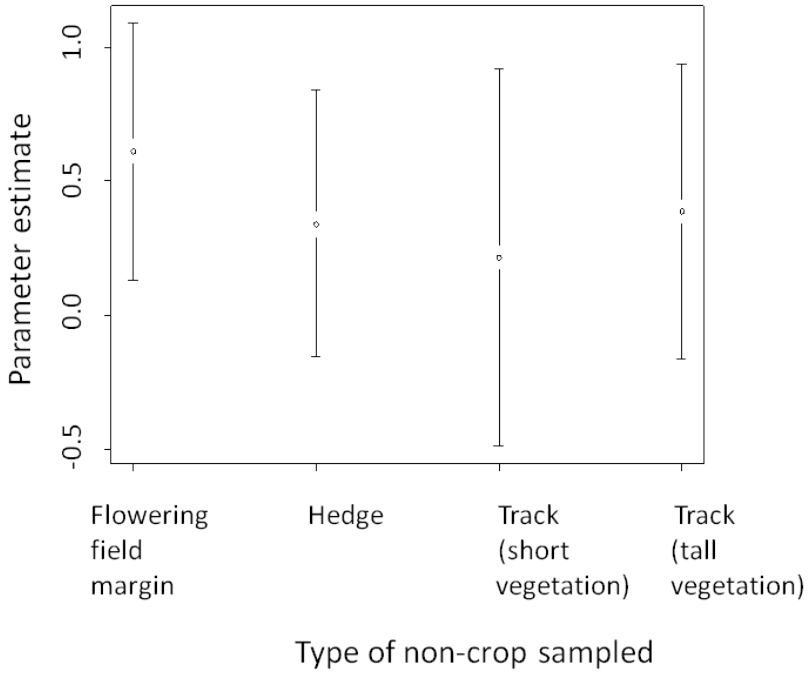
Effect of habitat type on bee counts





- Higher bee counts on flowering crops – beans, oilseed rape & linseed
- Lower counts on cereal than any other crop
- Slightly higher counts on flowering field margin than other non-crop habitats

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Higher bee counts on flowering crops than their adjacent field margin

Type of crop	Mean bee counts on crop	Mean bee counts on adjacent field margin
Beans	**5.40**	**2.20**
Cereal	0.31	3.68
Oilseed Rape or Linseed	**4.15**	**3.45**
Pasture with animals	0.20	3.93
Pasture without animals	0.55	1.45
Vegetables	0.45	1.86

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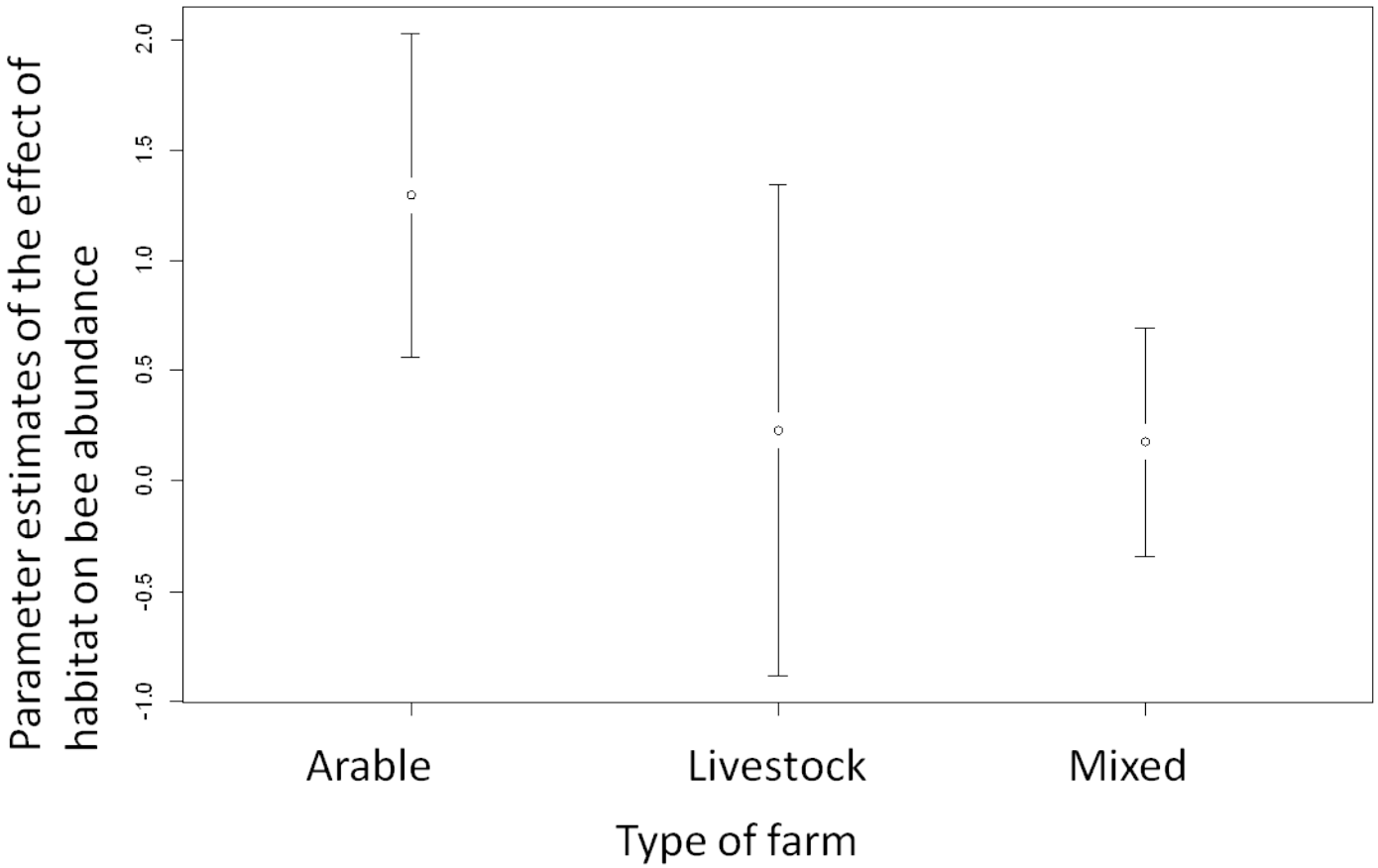
Higher bee counts on arable farms compared to others



- Higher bee counts on Arable farms

Local landscape effects on bee abundance on flowering field margins

- Higher bee counts on Arable farms
- No significant effect of landcover within 1km
- No significant effect of neighbouring habitat





Discussion

Farm type significant

- But higher bee counts on Arable farms perhaps surprising
- High bee density in flowering field margins?

Landcover not significant

- But other studies e.g. Lentini *et al*, 2012 found an effect
- Insufficient taxonomic/landscape resolution?

Neighbouring habitat not significant

- But lower counts of bees on flowering field margins compared to adjacent flowering crops
- Vast amount of resources, but short flowering season

Further questions

- Do flowering crops act as a sink for bees and other pollinating insects?
- Can citizen scientists identify pollinating insects to species?
- Does the surrounding landscape effect insect counts on farms?

Acknowledgements

- Thank you to all participants, farmers and visitors
- Special thank you to LEAF for providing us with the opportunity to run the survey as part of Open Farm Sunday

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  - Systematic review of citizen science
  - Case studies
  - Interviews with end users of data
- Practical guide available today

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