Invertebrate Para-taxonomy Results 2025

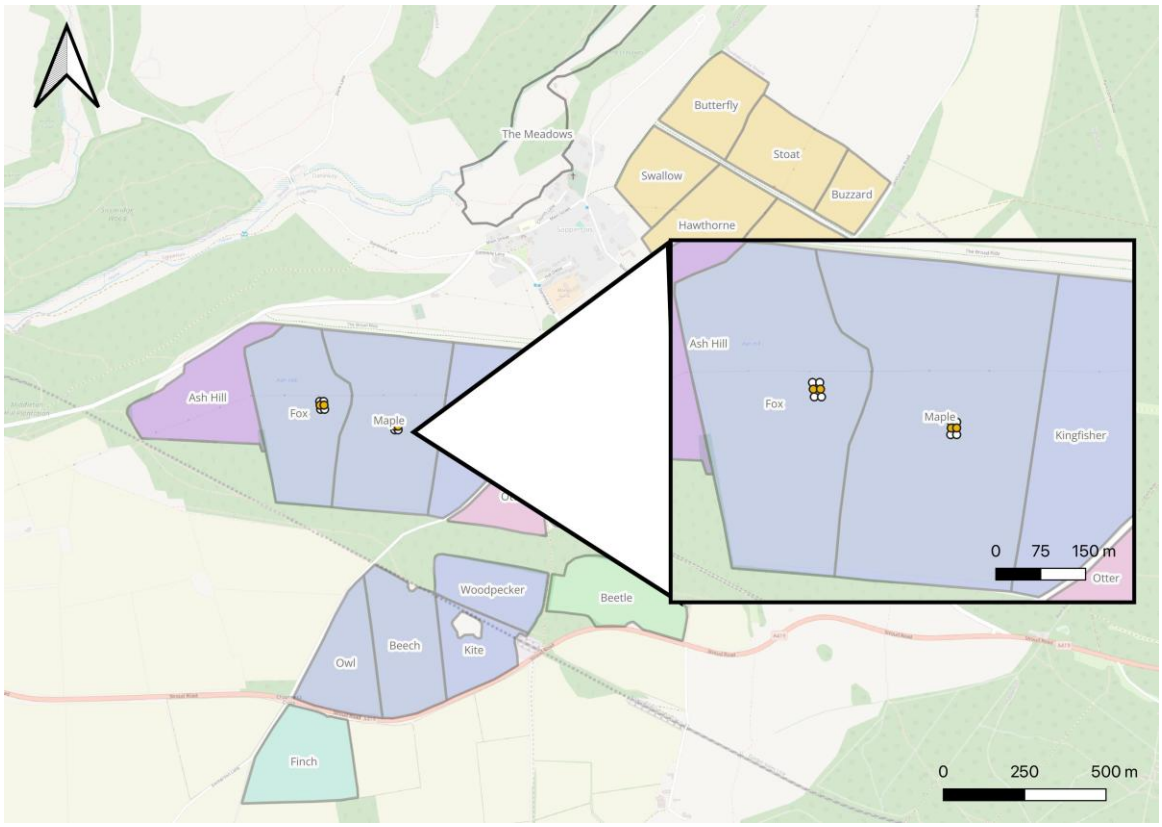
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Intro

Sapperton Wilder aims to explore how farming and nature can not only sit together, but how nature friendly farming can positively support sustainable, low-input food production. The use of herbals leys to support soil health is now well-established. Less quantified is the purported above-ground biodiversity benefit from providing flowers and other plant structures. These would benefit the insects, the least measured but vital ecosystem service providers – and potential pests. Evidence Nature was contracted to help acquire this baseline, the results of which feed directly back to the farm and give an understanding of what invertebrate "functional groups" are present, with plans to monitor long-term to see how these change over time. Using the method of para-taxonomy is much more cost effective and usable for landowners to get a snapshot of what is present, rather than the very costly full invertebrate survey with identification to species. This baseline study was funded by the Cotswold National Landscape's Farming in Protected Landscapes (FiPL) grant.

Methods

Sampling took place in two Sainfoin/grass dominated herbal ley fields, Fox and Maple, using standard traps and methods by Evidence Nature. These fields were selected for monitoring to collect a baseline in the herbal leys before upcoming livestock integration and agroforestry planting. The herbal leys had been in for 2 years.



One set of six Alexander flight interception traps were built and set in each field (one trap being four inverted plastic bottles with one side cut away. The upturned bottle necks are reservoirs of 200 ml of 70% white vinegar preservative with a drop of detergent to break surface tension. Each trap was positioned ten metres apart (2nd and 5th traps an attractant yellow, the rest clear) and left catching insects two weeks in in June (6-18 June) and again in July (7-21 July).





Samples were collected at the end of the two-week period, labelled and stored in 70% isopropyl alcohol until the time of the workshops where samples could be sorted and identified.

Two public workshops were held at the Sapperton Village Hall in late October and early November. Under expert guidance, Sapperton Wilder volunteers sorted the resulting insect samples into morphological species (MSp) – essentially sorting into groups of what look alike. All of the information on numbers were recorded to create baseline data to be repeated in 2026.



Results – What did we find?

In 2025 we found out that the number of MSp and abundance was higher in Fox field than Maple, despite these fields being adjacent. In June, a phenomenal number of over 7000 individuals of a tiny species of Frit Fly were caught. These flies lay their eggs in grass stems or in the upper layers of the soil where the larvae feed inside stems; it seems a mating emergence was intercepted. One species of Frit fly is a notable pest of cereals, but with over 209 mostly harmless described European species, it is more likely these fed the swallows than damaged the crop.

In June, the catch was dominated by another stem boring species – the swollen thighed flower beetle *Oedemera nobilis* and its close relative *Oedemera lurida*.



Swollen Thighed Flower Beetle

Examples of species across all orders of insects were intercepted, including solitary and bumble bees, but these were more often only caught as single individuals. When the trapping was repeated in July, the fauna had shifted to a dominance of seven-spot ladybirds, flesh flies and the moth parasite fly *Eriothrix rufomaculata*. All common species found abundantly elsewhere Evidence Nature has trapped. Plant eating bugs were also well represented. At twenty individuals, the spider hunting wasp, *Anoplius nigerrimus* (Nigel for short), was found much more commonly than usual. Soldier beetles, often very common, were mysteriously absent.



Kathy Meakin of Evidence Nature leading the group through identification

Discussion – What does it mean?

How do the numbers compare with other sites? Evidence Nature always uses standard protocols precisely so that sites and habitats can be compared against each other. Before the

alarm was raised about insect declines, we had not thought to find out what sort of numbers and mixes of common species there should be in a field.

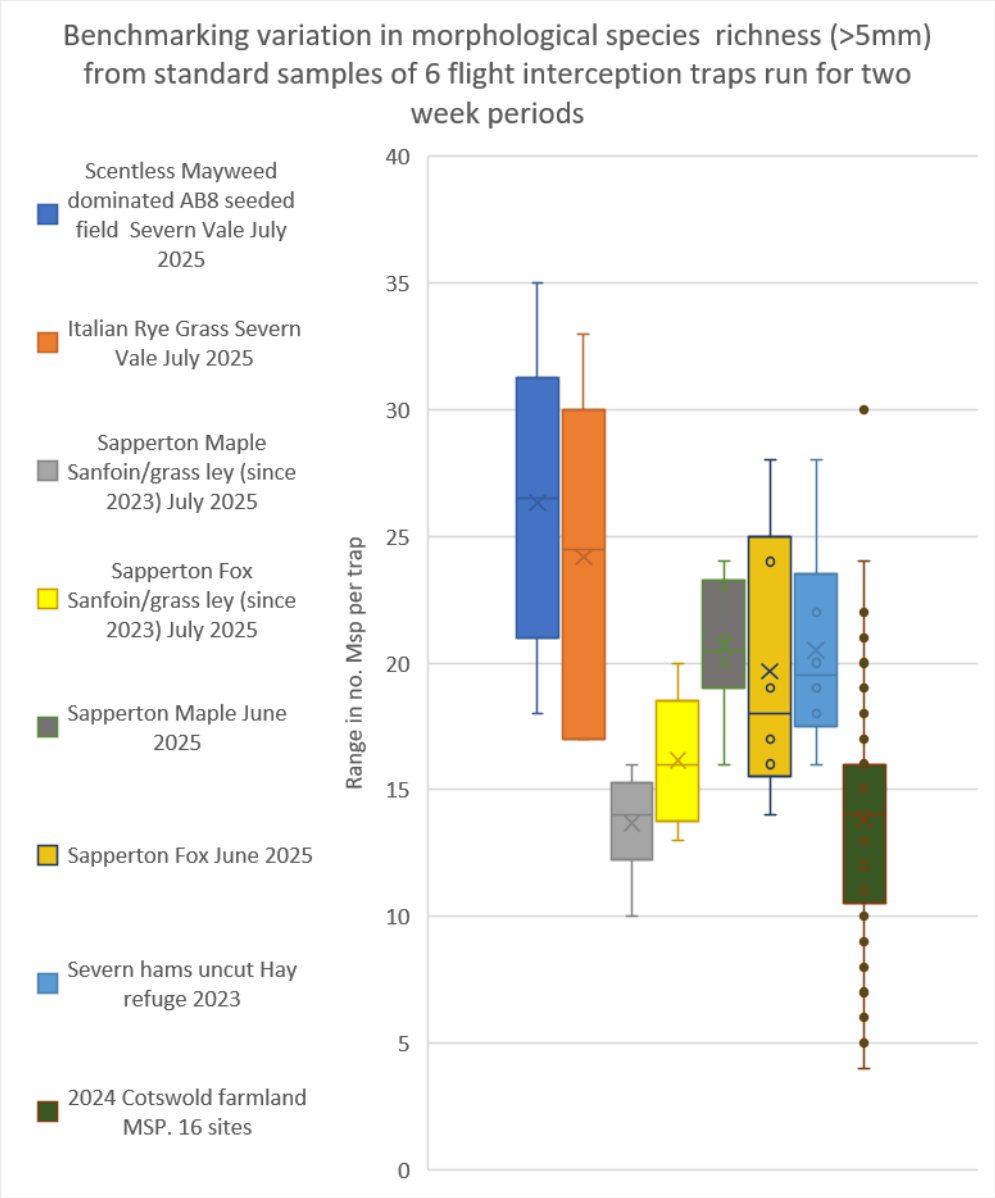


Figure 1: Sapperton Wilder field results compared to other locally sampled sites

The 2025 data (Figure 1) shows the variability in the traps displayed as box plots. The taller the box, the greater the variability in the catch across the six traps. A rich site would have a squat box, high up on the vertical axis, meaning all traps caught a lot of insect species.

Comparing with Evidence Nature's reference data on 16 farmland sites trapped in 2024 (dark green box, far right), an average sort of number of species was caught in Maple in June (pale grey) and above average in Fox (light yellow). Both fields were well above average MSp

richness in July (darker yellow and grey), but some traps in Fox caught a lot more species than others (a longer box).

Both are dwarfed by samples taken in July at a farm in the Severn Vale. This result was initially most surprising and took some thinking about. Evidence Nature concluded the likely reason to be that the farm had laid a large area to wildflower mixes although these had been largely unsuccessful, becoming dominated by the native "weed" Scentless Mayweed. This native plant had attracted a large number of insects to its pollen and nectar including hoverflies barely even caught at other sites and from the numbers caught in the Rye grass, commuting to visit the Mayweed from some distance. The fields were also fringed by long established and wide field margins with hedges. So, at this point, it does indeed seem that leaving space for nature or letting it take over, gets biodiversity results. Both the Sapperton herbal leys and the Severn vale farm are being re-surveyed in 2026 with sorting workshops pending, watch out for updates on what happened in the 2026 drought.

What are the next steps?

Monitoring for 2026 re-sampled both herbal leys (Fox and Maple fields), as well expanding to agroforestry trial plot (Badger field) and the conventional control field in Spring Barley (Finch field). A herd of 14 English Longhorn cattle were introduced to the herbal leys for conservation grazing in November 2025. It will be interesting to see if/how MSp richness and/or abundance has changed with this change in management. As well as how they compare to the agroforestry trial plot (which has been in for 2.5 years) and to the conventional Spring Barley crop.

2026 workshops will be running on 29 October and 5 November.

Acknowledgements

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All of the community volunteers who came to the workshops and helped sort through insects. Thank you to the Sapperton Village Hall for hosting the workshops.

Stay tuned for 2026 results!