An invertebrate coenosis inside a passive infrared motion sensor in a house at Little Comberton, Worcestershire.

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An Intellisense passive infrared motion sensor was positioned at the top of an internal wall in a house at Little Comberton, Worcestershire (VC37 SO94) during 1988. The sensor was a sealed unit serviced by a tight-fitting supply cable through its top, wired up to a small circuit board (01). The system was upgraded on 26 October 2022 and the sensor was opened up and examined.

It contained evidence of a self-sustaining community of invertebrates involving three key species each intimately connected to the other. The community was driven by a spider of unknown identity which had constructed a pad of silk apparently as an egg sac. How these invertebrates entered the sensor or gained egress from it is unclear but it could not have been a simple matter. The chances of such an assemblage establishing itself must be remote.

Fig. 01. Circuit board of passive infrared motion sensor showing exuvia of *Anthrenus fuscus* and their abundant faecal pellets. The areas of spider's web consumed by *Tribolium confusum*, of which two specimens are depicted, are clearly visible. Little Comberton, Worcestershire, 26 October 2022. Paul Whitehead

The spider and any evidence of its eggs had been consumed, with the exception of the cephalothoracic dorsum, by four larval dermestid beetles *Anthrenus fuscus* (Olivier, 1789) of which exuvia are visible in 01. A fragmented latridiid beetle *Cortinicara gibbosa* (Herbst, 1793) was also evidently consumed by the dermestids. Five dead tenebrionid beetles *Tribolium castaneum* (Herbst, 1797), usually, but not universally, considered a stored product tramp species, had consumed about 30% of the spider's web. There was no firm evidence of consumption of any other food item although evidence from their faecal pellets demonstrated a possible consumption of solder flux. *Tribolium castaneum* is intensely catholic in its choice of food items (Whitehead, 1998, 1999) and is able to metabolise old dead insects and dried glue, although the consumption of spider's webs may be novel. Mr J. W. Meiklejohn (*in litt.*) recorded 70 consuming stored peanuts in a house in Kidderminster, Worcestershire (VC37 SO87) on 17 January 1991.

It is unclear as to when, during the sensor's 38 year life span, this assemblage may have originated. However, a marked upturn in the local population of *T. castaneum* occurred between 2000 and 2007 and this is a reasonable assessment of the time of colonisation.

References

Whitehead, P.F. 1998. *Tribolium castaneum* (Herbst) (Col., Tenebrionidae) infesting dried insects in Worcestershire. *Entomologist's Monthly Magazine* **134**:214.
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