

## Request for Cooperation

We are a team of 11 research scientists at the Department of Genetics, University of Cambridge, working on the evolutionary genetics and ecology of coccinellids. Currently, our main areas of interest are:

- 1) reproductive strategies (both male and female),
- 2) sexual selection,
- 3) species recognition and hybridisation,
- 4) phylogenetic relationships (particularly in the genera *Coccinella*, *Adalia* and *Harmonia*),
- 5) sexually transmitted diseases of coccinellids (mainly acarinids)
- 6) abnormal sex ratios (particularly as a result of infection with male-killing endosymbionts).

Following some information about the last three points:

4) Our phylogenetic work has been concentrated primarily on the evolution of myrmecophily in members of *Coccinella*. However, we have also done considerable work on the genetic basis of colour pattern polymorphism in the genus *Adalia*. In this species, as in some other coccinellids, colour pattern polymorphism is controlled by a super-gene, and genetic dominance varies between populations. We would like to investigate the genetic basis colour pattern polymorphism and of genetic dominance in this and other systems, and so are keen to procure samples of coccinellids that exhibit colour pattern variability from other parts of the Europe. In particular, species which have melanic forms are of interest. Samples of 20 or more live coccinellids of any species which exhibit such polymorphism, including some melanics, would be useful, but the more the merrier. In addition, we are keen to get hold of live samples of any other members of the genera *Coccinella*, *Adalia* or *Harmonia* to allow us to place the species we work with phylogenetically. Samples of species that have an association with ants, particularly *Coccinella magnifica* (= *distincta*) would also be appreciated.

5) The work we conduct on sexually transmitted diseases in coccinellids concerns ectoparasitic mites of the genus *Coccipolipus*. To date we have shown that one species, *Coccipolipus hippodamiae*, which is found on a number of species of coccinellid, is horizontally transmitted during sex

and has an adverse effect on female fecundity and fertility. Recently we found a second species (yet to be described) on *Coccinella 7-punctata* (from Spain) which does not appear to bear *C. hippodamiae*. We are keen to determine whether other species of coccinellids harbour different species of this genus. The ultimate aim of this work is to answer questions on the conditions necessary for sexually transmitted diseases in invertebrates, and to consider in particular the effect of different levels of female promiscuity on rates of transmission, and the effect of multi versus univoltinism of mite infestation rates. Samples (any number, but again the more the better) of live ladybirds and any species would be useful for this work.

6) We have recorded male-killing bacteria in five different species of coccinellid, and suspect their presence in many more. Two of the most interesting species are *Harmonia axyridis* which harbours a male-killing bacterium (probably a spiroplasma) at varying frequencies (Sapporo, Japan: 45% infection; Altay, Mongolia: 2,2% infection; Novosibirsk, Siberia: probably absent), and *Adalia bipunctata* which harbours two different male-killers in different populations. This is of particular interest as the variation in infection rates, and the existence of two different endosymbionts in the same species, have implications for the evolution of mitochondrial DNA variability (due to the maternal inheritance of both the endosymbionts and mtDNA). We have a great need for samples of both these species from other regions. Samples of other species are also wanted so that they may be assayed for male-killers as part of a world-wide survey into the prevalence of male-killing endosymbionts in coccinellids.

Any publications resulting from work on samples sent to us are always acknowledged by co-authorship.

If you are able to help, we recommend to use flat metal cigarette packets which allow a simple sending as letter. Please perforate the sides and put some small pieces of soft paper into the box so that the beetles have a support during their mailing.

I do hope that you can help. If you want further details, please contact me by mail at the address below, or via e-mail on <menm @ mole.bio.cam.ac.uk>. Reprints of any of our work on coccinellids are available on request.

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Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Mitteilungen des Internationalen Entomologischen Vereins](#)

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