

## Conference or Workshop Item (Poster)

---

**Comont, Richard**; Harrington, Richard; Lewis, Owen T.; **Purse, Bethan**; **Roy, Helen**. 2009 Modeling *Harmonia axyridis* interactions within the aphidophagous guild. [Poster] In: *1st meeting of the IOBC/WPRS study group "Benefits & risks associated with exotic biological control agents": Harmonia axyridis and other invasive ladybirds, Engelberg, Switzerland, 6-10th September 2009*.

This version available at <http://nora.nerc.ac.uk/8348>

NERC has developed NORA to enable users to access research outputs wholly or partially funded by NERC. Copyright and other rights for material on this site are retained by the authors and/or other rights owners. Users should read the terms and conditions of use of this material at <http://nora.nerc.ac.uk/policies.html#access>

Contact CEH NORA team at  
[noraceh@ceh.ac.uk](mailto:noraceh@ceh.ac.uk)

# Modelling *Harmonia axyridis* interactions within the aphidophagous guild

Richard F. Comont<sup>1</sup> & <sup>3</sup>, Richard Harrington<sup>2</sup>, Owen T. Lewis<sup>3</sup>, Beth V. Purse<sup>1</sup>, Helen E. Roy<sup>1</sup>

<sup>1</sup> - NERC Centre for Ecology and Hydrology, Wallingford, UK. <sup>2</sup> - Rothamsted Research, Harpenden, UK <sup>3</sup> - University of Oxford, Oxford, UK.

The rapid spread of the harlequin ladybird, *Harmonia axyridis*, across the UK is predicted to impact native coccinellids through direct competition and intra-guild predation.

Climate change is predicted to affect the population dynamics and seasonal overlap of coccinellids with their aphid prey.

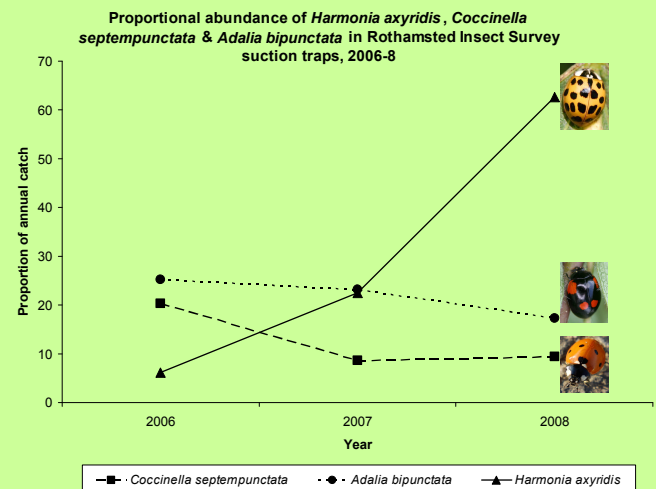
The combination of these two effects could alter relationships within the aphidophagous guild.



*Harmonia axyridis* overwintering aggregation



*Harmonia axyridis* (above) & aphids on *Lotus corniculatus* (right)



We aim to quantify the impact of *H. axyridis* on native coccinellids by answering three main questions:

- What are the roles of top-down, bottom-up and abiotic factors in driving the dynamics of coccinellid and aphids?
- Which native coccinellids have niches overlapping with *H. axyridis*?
- Will *H. axyridis* impact negatively on these overlapping species?

## Data for model:

- Rothamsted Research Aphid Survey (1963-present)
- BRC Ladybird Surveys (1968-present) including:
  - *Coccinella septempunctata*: 8,366 records
  - *Adalia bipunctata*: 7,773 records
  - *Harmonia axyridis*: 15,647 records

We will model the effects of the following on the responses of native coccinellids to *H. axyridis*:

- prey abundance
- community structure
- How will climate change affect these interactions?



*Exochomus quadripustulatus*

*Coccinella*



*Propylea quatuordecimpunctata*



*Adalia bipunctata*



*Harmonia axyridis* ova



We gratefully acknowledge the support of the JNCC



*Harmonia axyridis* larva

