

European Network for the durable exploitation of crop protection strategies

IA3 Activity: Human resource exchange

ENDURE - Internal Mobility

Final activity report

(This form has to be completed and sent to the activity leader – the message should be sent to his p.a. elisa.scanzi@ibaf.cnr.it – within 15 days of the end of the visit)

Topic of the visit

The value of non-crop land on farms for conservation biological control

1. Information about researcher and sending partner

Name and surname: Dr Lisa Eggenschwiler

Professional status: *(PhD student, post-doc, junior or senior scientist)* Scientist

Sending partner: Agroscope Reckenholz-Tänikon ART (AGROS)

Institute/Department/Research Unit: Agricultural Landscapes & Biodiversity

Address: *(street, postal code, city)* Reckenholzstrasse 191, CH-8046 Zürich, Switzerland

E-mail and phone number of the researcher: lisa.eggenschwiler@art.admin.ch, phone: +41 44 377 74 13

Supervisor name*:

Supervisor e-mail*:

Supervisor phone number*:

*Supervisor information only for PhD student, post-doc and junior researchers

2. Information about hosting partner

Hosting partner: Rothamsted Research (RRES)

Institute/Department/Research Unit: Plant & Invertebrate Ecology Department

Address: *(street, postal code, city)* Harpenden, Hertfordshire, AL5 2JQ, United Kingdom

Supervisor name*: Dr Judith Pell

Supervisor e-mail*: judith.pell@bbsrc.ac.uk

Supervisor phone number*: +44 1582 763 133 ext. 2447

* For senior scientist indicate the name of the collaborating colleague

3. Information about the visit

Duration: (*number of weeks or months*) 10 weeks

Start date: 27th April 2008

End date: 5th July 2008

4. Description of the activities and outcomes

Background and context: *maximum 10 lines*

Aphids can cause considerable damage in cereal crops. The aim of a planned project at AGROS is to develop seed mixtures for flowering strips which are especially attractive to cereal aphid antagonists, and to study how to place these strips in arable landscapes in order to efficiently enhance the beneficial insects, therefore reduce the cereal aphids and as a consequence reduce pesticide input. In terms of functional biodiversity we have studied the influence of wildflower strips on soil texture and the abundance of the entomopathogenic soil fungus *Metarhizium anisopliae* so far. This year a first experiment on cereal aphid control with flowering strips has been done. In the near future we will examine more aspects of the value of ecological compensation areas on arable land such as flowering strips for functional biodiversity for conservation biological control.

Objective: *maximum 10 lines*

- To learn new and appropriate methodologies and techniques related to habitat management and functional biodiversity to plan and extend experiments related to sub-activity RA 2.3
- To study the value of non-crop land on farms for conservation biological control by sampling natural enemies on farms across the East of England that have contrasting crop and non-crop diversities
- To study the value of early developing, alternative host plants for aphids and their natural enemies
- Sampling and examining differently managed soils for entomopathogenic fungi
- Making contacts with other researchers for further collaboration

Activities carried out: *maximum 20 lines*

- Study of literature about functional biodiversity in arable land, about entomopathogenic fungi and the *Galleria* bait method, methods and sampling designs
- Visual and vortis sampling of aphids and their natural enemies (parasitoids, entomopathogenic fungi, predators) in stinging nettle patches on 14 farms in the East of England (field work)
- Visual and vortis sampling of aphids and their natural enemies in arable crops and semi-natural (= non-crop) habitats on 14 farms in the East of England (field work)
- Sampling of soil and examination of entomopathogenic soil fungi by using the *Galleria* bait method. Start of a long-term-experiment with soil of cereal plots, grassland plots and fallow land.

- Contribution to mesocosm experiment on the interaction between aphids, an aphid parasitoid and an entomopathogenic fungus; setting up and removing the experiment, assessing plants for dead aphids
- Contribution to PhD thesis about the invasive Harlequin ladybird (*Harmonia axyridis*); field work and discussions

5. Links between visit activity and ENDURE

Describe links and relevance of your visit in relation to a specific ENDURE activity(ies) and sub-activity(ies) – maximum 15 lines

With our planned study about the influence of specially designed flowering strips on cereal aphids and their natural enemies (see chapter “Background and Context”) we are contributing to sub-activity RA 2.3. During my stay at RRES I could improve my knowledge about conservation biological control, functional biodiversity and specifically about aphids and their natural enemies which will help planning our further experiments at AGROS. Moreover, I established some contacts with people at RRES which could be relevant for the sub-activity.

6. Impact

Added value for the researcher: *maximum 10 lines*

- Improved knowledge about conservation biological control, functional biodiversity, methods (e.g. insect sampling techniques, *Galleria* bait method), entomology (i.e. aphids, lacewings, hoverflies, ladybirds, parasitoid wasps)
- Improved knowledge about farming in the UK
- Making contacts with people at RRES
- Improvement of English skills

Added value for sending partner and hosting partner: *maximum 10 lines*

Both partners: Making contacts, possible further collaboration, exchange of knowledge, experience and ideas.

Sending partner: Benefit of everything I learned during the stay at RRES, as methods, sampling designs and experience.

Hosting partner: Help with work in the field, lab and office; my contribution to discussions, e.g. about methods, sampling designs, farming in Switzerland, our experiments.

Date of submission

16th July 2008



Dr. Maurizio Sattin
IA3 activity leader

Approved