

## 1 PhD student in the research education subject: Biology, with specialisation Ecology

### Food webs and ecosystem services in agriculture

Are you searching for a PhD project in which you will develop ecological theory as well as applications relevant for society? Do you thrive in a multi-disciplinary, international research environment? Would you like to collaborate internationally and communicate with stakeholders? Then this PhD position in the research education subject ecology with the Agricultural Entomology team at the Department of Ecology, Swedish University of Agricultural Sciences, Uppsala should be of interest to you.

Insects dominate biodiversity with more than half of all named species on Earth being insects. Of this enormous number of species, many (if not most) are beneficial and provide us with ecosystem services. For example, a large number of predatory and parasitic insects and spiders prevent outbreaks of herbivorous pest insects, thereby securing harvests which would otherwise be lost. These predators and their prey interact with each other and with plants in complex food webs. The structure (i.e. who eats whom) and abundance dynamics in these webs are important determinants for ecosystem functions and related services such as the biological control of crop pests. If properly managed and exploited, the services may replace the use of chemicals in agriculture, thereby minimizing negative impacts on the environment and biodiversity whilst maintaining high and stable crop production levels. But for us to manage insect communities properly, we need to develop and apply relevant ecological theory and perform experiments to better understand how food webs are shaped by the environment and by cropping practices in agricultural landscapes. We need to explore how shifts in the interaction structure and species abundance composition affect the delivery and stability of ecosystem services provided in crop and non-crop habitats.

**The work:** We seek a PhD student interested in developing and combining ecological theory with an extensive empirical component. The empirical part includes large scale field experiments and mapping of networks of interacting arthropods and plants in multiple crop and non-crop habitats in agricultural landscapes. Field surveys can potentially be complemented with smaller-scale cage experiments to study interactions and population dynamics in purposefully created food webs. The successful applicant is expected to take active part in developing the project and designing the experiments. Mapping interaction networks includes the use of molecular tools. The student is expected to use the information acquired to participate in the development and dissemination of pest management schemes and management of production-supporting ecosystem services in agricultural crop production systems. The successful candidate will enter a strong research team with technical support. We build on extensive national and international collaborations to generate cutting-edge research and outreach to further ecology as science and promote sustainable agriculture (see <http://www.slu.se/ecology/riccardobommarco> and <http://www2.ekol.slu.se/ecoservices>).

**Location:** The position is based at the Ecology centre at the Swedish University of Agricultural Sciences (SLU), in Uppsala, Sweden. The centre includes the Department of

### SLU is an Equal Opportunity Employer.

**A person has basic eligibility for third cycle education** if he or she has taken a second cycle qualification or has completed course requirements of at least 240 higher education credits, including at least 60 higher education credits at second cycle education. Upper secondary school grades equivalent to English B/English 6 are a basic requirement.

**Selection among applicants meeting the requirements** is made with reference to written application including curriculum vitae, copies of degrees and transcripts of academic records, one copy of the dissertation for masters or undergraduate degree, a list of at least two references familiar with the applicant's qualifications, certified knowledge of the English language and an interview.

**Read** about the PhD education at SLU at [www.slu.se/en/education/programmes-courses/postgraduate-studies/](http://www.slu.se/en/education/programmes-courses/postgraduate-studies/)

Use this [APPLICATION FORM](#)

### Further information:

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### Academic union representatives

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**Applications**, marked with **ref no SLU ua 1931/2016**, must have arrived at the Registrar of SLU, P.O. Box 7070, SE-750 07 Uppsala or [registrator@slu.se](mailto:registrator@slu.se) no later than **2016-06-26**.

Ecology where we conduct research for sustainable agriculture, forest production and biological conservation. Our basic research on populations, communities and ecosystems forms the foundation for understanding influences of land use and climate on animals, plants and soil nutrient status and greenhouse gas balance. Solutions are sought that will mitigate climate change, preserve threatened species, benefit biological diversity and ecosystem services and control pests in managed agricultural, forested and urban landscapes. Active dissemination, outreach and frequent contacts with stakeholders are key activities.

### **Qualifications**

Our PhD-education aims to develop your creative and analytical thinking and to strengthen your communication skills in the context of research and outreach. Applicants should have a Masters degree (or equivalent) in biology, agronomy, environmental science or similar subjects with specialization in ecology, and should be interested in developing and combining both basic and applied ecology. Advanced level courses in community, food web, population and landscape ecology, crop protection and insect ecology are meriting, as are experiences of using molecular techniques and of ecological field work with insects and plants. Skills in planning, executing, and reporting experimental data scientifically and popularly are meriting, as is experience with statistical and/or bioinformatic analysis. The applicant should have the ability to work both independently and in a team. International collaborations and student exchanges are commonplace in our team and the PhD studies will include a prolonged stay with a research team abroad. Proven ability to communicate excellently in written and spoken English is essential. Field work will take place in multiple locations in Sweden, and a driving license is therefore required. The University strives to achieve an even gender balance. Therefore, applications from women, as well as from men, are encouraged.

We welcome your application until 26 June 2016 marked with Ref no. SLU ua 931/2016. The application shall be written in English and preferably submitted via e-mail to the Registrar at [registrator@slu.se](mailto:registrator@slu.se) as PDF, or as letter to Registrar, SLU, Box 7070, 750 07 Uppsala, Sweden. Only applications submitted to the Registrar are eligible. Do not send your application to the contact person. Applicants are expected to provide (i) a motivation letter, (ii) CV, (iii) certified copies of degree certificates, (iv) copy of a dissertation at second-cycle level, corresponding at least 15 HEC, (v) an English language test certificate (either from Swedish gymnasium, TOEFL, IELTS or Cambridge ESOL), (vi) if the applicant is a foreign citizen, a certified copy of the passport must be attached and (vii) a list of referees and their contact information.

### **Forms for funding or employment**

Employment as PhD student