

# IUSSI, BRITISH SECTION

(International Union for the Study of Social Insects)

## SPRING NEWSLETTER, MARCH 2004

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Meetings site <http://www.zi.ku.dk/iussi/meetings.html>  
Who's who site <http://www.zi.ku.dk/iussi/newsletter.html>

### Annual Winter Meeting Friday, 10 December 2004, London

After last year's successful and fun foray in Dublin, we are returning to more familiar shores. This year's winter meeting will take place in the Meeting Rooms of the Royal Entomological Society, London, UK. Please think about giving a talk or bringing a poster along, and contact Mark Brown (see above) for further information or to be put on the speaker list for the day.

## Other Forthcoming Meetings

**XXII International Congress of Entomology, *Strength in Diversity*, 15-21 August 2004, Brisbane, Australia...** Further details of this meeting can be found at: <http://www.ccm.com.au/icoe/>.

**INSECTS CLOSING SYMPOSIUM, *Integrated Studies of Social Evolution*, 2-6 September 2004, Helsingør...** This meeting marks the end of the INSECTS EU-Framework network, to which many of our members belong, and is being organised by Koos Boomsma's group (see below). Further details can be found at: <http://www.zi.ku.dk/eunet/helsingor/>

**10th CONGRESS OF THE INTERNATIONAL SOCIETY FOR BEHAVIORAL ECOLOGY, 10-15 July 2004...** For further details of this meeting, please go to: <http://www.isbe2004.com>

**The European Conference of Apidology "EurBee", Udine, Italy, 19-23 September 2004...** For more information, please visit <http://web.uniud.it/eurbee/>

## Obituary

We were extremely sad to hear the news that Rainer Rosengren, a distinguished member of our section, passed away earlier this year. Our president and long-time colleague and friend of Rainer has written in memory of him:

Rainer Rosengren, well known for his studies on *Formica* ants, and a long time member of the British section of IUSSI passed away on February 4th only a few months before his 70th birthday. Most social insect workers know him from his work on route fidelity, visual memory and recruitment behaviour in *Formica* ants. This piece of work, published in 1971, comprised his PhD thesis, and is still today widely cited. Although the completion of the PhD-thesis marked the onset of his scientific career and the initiation of the ant research tradition in Finland, he already was a fully fledged scientist and philosopher before this. Always intent on a debate and adept with the pen he wrote several essays on ethology and evolutionary biology in a true darwinian spirit during the 60's. These essays centered on man as a biological creature and followed up on themes initiated by Konrad Lorenz and later brought into debate by E.O. Wilson.

Rosengren's scientific work centered throughout his career on *Formica* ants. His interest for these ants arose, however, already long before he began his studies at the university. The topics varied from orientation, memory and diurnal rhythms to reproductive allocation and sex ratio studies. Several papers were published on the reproductive biology of *Formica* ants, in collaboration with Pekka Pamilo, including one quite influential piece of work on the causes and consequences of polygyny and polydomy published in *Acta Entomologica Fennica* in 1983. Indeed, ant research in Finland might not exist without his initiative and recruitment of collaborators and PhD students such as Vepsäläinen and Pamilo as well as all those that were to follow later. Actively planning for yet another field season he devoted most of his efforts during the last decade on experimental work on learning and memory in ants, as well

as several projects on the genetic population structure of *Formica polyctena* and *Formica rufa*.

A lesser known part of Rosengren's more recent literary contributions comprises an extensive essay on the philosopher Edward Westermarck's relation to Darwin, which he completed a few years ago. This essay captures his scientific qualities and his ever present willingness to learn new concepts, methods and procedures and to question conventional wisdom. This attitude, combined with an exceptionally broad general education and a wonderful sense of humour made him a truly inspiring person to have around. His multifaceted character and interests were perhaps best captured by the literature he had on his bedside – Job's book and a 500 page manual for advanced statistics.

Lotta Sundström

## Other News from Social Insect Labs in the British Section

**Belfast...**Aculeate biology is becoming firmly established in Ireland with the addition of **Robert Paxton** to the School of Biology and Biochemistry, Queen's University Belfast. The range of nationalities of both students and collaborators parallels the range of topics studied within the lab. Dr. **Lidiya Russina** and **Lesya Firman**, from Kersson University in the Ukraine, are visiting to continue their studies on social evolution in polistine wasps. Their collaborators, Dr. **Manuela Giovanetti** and **Carlo Polidori**, from the University of Milan, were also *in situ* for short periods; both study the biology and behavioural ecology of aculeates. From Montpellier University, **Benjamin Dainat** is beginning his research on the population genetics of the parasitic mite of honey bees, *Varroa destructor*.

The more permanent members of the group include our postdoc Dr. **Tek Tay**, who together with 1<sup>st</sup> year PhD student **Julia Klee** and Dr. **Elaine O'Mahony** is working on the population and evolutionary genetics of Microsporidia in European bumblebees. **Antonella Soro** is continuing her research on nestmate recognition and the population genetics of the primitively social sweat bees whilst **Joao-Paolo Holanda-Neto** is in his second year of his PhD, investigating pollination and the population ecology of cashew. I have just begun my PhD on the conservation genetics of Irish bees, in collaboration with Drs. **Mark Brown** and **Úna Bradley** of the University of Dublin, Trinity College.

Tomás Murray

**Copenhagen:** There have been quite a few changes in the Social Evolution group in Copenhagen in the last few months. A major organizational change, which won't actually affect us very much, is the consolidation of the former Zoological and Botanical institutes at Copenhagen into a single *Biological Institute*, with the associated expansion of the former department of Population Ecology to become *Population Biology*. We now have research groups in *Vertebrate Communication*, *Animal Welfare* and *Plant Evolutionary Ecology* as stablemates, adding to our previous neighbours; *Arctic Population Ecology* and *Population Dynamics*. The Social Evolution group will continue to operate pretty much as before, and we're looking forward to new possibilities for intradepartmental collaboration. The new institute also has a new web site, which includes major contributions from **David Nash**, and which you are invited to visit at <http://www.bi.ku.dk>.

At the end of 2003, we lost one of our long-term dynamos when **Bill Hughes** left us to start an “outgoing Marie Curie” postdoc in the group of Ben Oldroyd in Sydney; we’re sure Bill is missing the Danish winter already. Despite Bill’s loss, the group has grown considerably in the last months. A new PhD student, **Daniel Kronauer** from Würzburg, Germany, started a project on the evolution of army ants in December, and in January **Sophie Armitage** from Sheffield started as the new INSECTS postdoc. Sophie works on Insect Immunology, an interest that she shares with **Boris Baer** and myself. **Sandra South**, a visiting undergraduate from Melbourne, Australia, has also started a six-month project working with us on this topic. **Susanne den Boer**, yet another visiting undergraduate from Utrecht in the Netherlands, has been with us for the last six months, and has been working on the efficiency of sperm use in *Atta* queens with Boris. All these new additions have fitted right in to the group, and have enthusiastically taken part in recent group social events.

Our Dutch PhD student, **Mischa Dijkstra**, is due to finish his PhD on worker policing in fungus-growing ants in the next months, but may join in the annual field trip to Panama for old time’s sake. Others who will go are Boris, Sophie and our only Danish PhD student, **Michael Poulsen**, who has got a fellowship from the Smithsonian Tropical Research Institute for several months’ fieldwork. Michael has only just returned from six months in Kansas working with Cameron Currie on the actinomycete bacteria that grow on the cuticle of *Acromyrmex* leafcutter ants.

Our termite group - **Duur Aanen** and his Masters’ student **Henrik H. de Fine Licht** - have recently spent some time in South Africa doing field and lab work together with Judith Korb from Regensburg. Henrik is still there, exchanging fungi between termite sub-colonies to study the specificity in the symbiosis between termites and *Termitomyces*.

Our invasive ants group including **Jes S. Pedersen**, **Lisbeth W. Børgesen** and myself, also hosted several students during the last year: a Dutch Masters student, **Suzanne Lommen**, and a Danish project student **Klaus S. Petersen**, who will shortly start a Masters project continuing this study. **Anna M. Schmidt** also joined us as a Masters’ student in January, and **Line V. Ugelvig** will soon start with her students’ project. Together we try to understand the evolution of unicoloniality, focussing both on the Pharaoh’s ant and the invasive garden ant. To study their chemical profiles, I recently started collaborating with Falko Drijfhout from our INSECTS network partner in Keele, England.

Our *MacMan* group consisting of **David Nash**, **Inga Zeisset**, **Ian Wynne** and **Jon Ebsen**, also had a visitor from another MacMan lab for several months, Ewa Sliwinska from Krakov, Poland. The work of this group focuses on population genetics and coevolution of *Maculinea* butterflies and their *Myrmica* ant hosts across Europe, with detailed work on the Danish island of Læsø. **Annette B. Jensen**, a postdoc on our third EU Network (BABE), is also working on this island, but concentrates on population genetics of the native black honeybees together with Bo Vest Pedersen, a lecturer in the Evolutionary Biology department. The entire group continues to benefit greatly from the efforts of our technical staff, **Sylvia Mathiasen** and **Henning B. Madsen** who organize our lab lives.

**Koos Boomsma** has again been spending some time in Germany visiting Regensburg following his award of a prestigious prize by the Alexander-von-Humboldt-Foundation, which also funds me at the moment by a Feodor-Lynen postdoc fellowship.

Finally, I would like to advertise the big INSECTS closing symposium that will be held in Helsingør from September 2-6, 2004, and which we hope will be a major meeting for all those working on or interested in Social Insects. Please visit our web page <http://www.zi.ku.dk/eunet/Helsingor/index.html>

**Sylvia Cremer**

**Dublin...** It was a pleasure to host the last British IUSSI Winter Meeting in Dublin, and to have so many social insect researchers prowling the historic grounds of Trinity College. In case we forgot to say, the Botany lecture theatre we used was also used to film “Educating Rita”, so all you Julie Walters and Michael Caine fans should have felt the buzz (excuse the pun...). In other news from the Zoology Department, Dr Una Bradley took up a post-doctoral position, working on the conservation genetics and distribution of Irish bees (see the Belfast note above). Una came to us from the Botany Department, so cross-fertilisation continues apace (see below for more!). Mario Ruiz-Gonzalez, Samina Rutrecht and John McMullan are all powering on with their PhD work, with both honey bees and bumble bees starting to come back to life after the cold and wet winter. Mark Brown just had the pleasure of a trip to the University of Helsinki, to judge the Graduate Spring Symposium in the Department of Ecology and Systematics. It was great to see so much excellent research, and to see that social insect research under the guidance of Lotta Sundström is such a strong part of this world-class department. And the Ice Bar was something else... Social insect research is also going on in the Botany Department at Trinity College. Jane Stout has been employed on a five-year lectureship and has founded the Pollination Ecology Group. This group has interests in the role of native pollinators in promoting invasion by exotic plant species, conservation of native bumblebee species (in collaboration with Mark Brown and Una Bradley in the Zoology Department) and the role of pollinators in rare native plant reproduction (PhD studentship available in this area - see below).

**Mark Brown & Jane Stout**

**Team:: Antzz, University of Helsinki...** Members of Team::Antzz study several aspects of social life in ants. One of the main topics has been intracolony conflicts, and how these conflicts are resolved. Another topic which is gaining momentum concerns the genetic structure of ant populations and the impact of habitat fragmentation. Here the focus is on many different aspects including population genetics, quantitative genetics, and phylogenetics. The team is headed by **Liselotte Sundström**.

Since the last newsletter, **Vienna Setälä** has returned from maternity leave to continue her work on foundress associations in *Lasius* ants. In cooperation with Vienna, **Kristian Lindqvist** recently finished his Masters thesis on the sex ratios of *Lasius flavus*. **Perttu Seppä** has been appointed lecturer in Oulu, and now shares his time between Helsinki and Oulu, where Pekka Pamilo heads another Finnish ant research team. The connection between the cities is also strengthened by Oulu PhD student **Hanni Kärkäinen**, who is spending some time in our group, and by postdoc **Marianne Elias**, who is employed by Helsinki but spends most of her time in Oulu. Currently on her last year of a Marie Curie grant, Marianne has recently submitted her first manuscript on *Formica truncorum*, and yet to come is work done with **Rainer Rosengren** on *Formica polyctena*.

Of our PhD students, **Heikki Helanterä** is very busy writing up his PhD thesis on worker reproduction and worker policing in *Formica* ants, and plans to defend the thesis in autumn. For our other PhD students, things are less hectic. **Kalle Trontti** continues his project on the population genetics and phylogeny of social parasitism in *Plagiolepis* ants. **Katja Bargum** is on her second year of her PhD studies on polygyny, reproductive skew and colony-level resource allocation in *Formica fusca*.

Another person writing up is **Emma Vitikainen**, who is finishing her Master’s thesis on inbreeding and sex ratios in *Formica exsecta*. The study was done in cooperation with our postdoc **Cathy Liautard**, whose two-year project takes a broad perspective on the effects of inbreeding in the species. The team has gained three new Master’s students. **Tuomo Karhu** works in cooperation with Kalle Trontti on the relationship between morphology and population structure of *Plagiolepis* ants. **Mikko Heini** and **Riitta Ovaska** will spend their

summer doing fieldwork at Tvärminne zoological station. Mikko will examine the population genetics and colony structure of carpenter ants, using both field and genetic studies. Riitta will join forces with Katja Bargum to study worker nepotism in *Formica fusca*.

**Katja Bargum**

**Institute of Zoology:** **Seirian Sumner** has been awarded a four-year postdoctoral research fellowship funded by the Institute of Zoology, which she will start this spring. As an independent researcher with a strong research program on social insects, Seirian will make an excellent colleague for members of the group. **Nigel Raine** came to the Institute as a temporary Visitor in October, in transit from the Sheffield social insects laboratory. In January, Nigel took up a NERC-funded postdoctoral post with Lars Chittka at Queen Mary. Many congratulations to both Seirian and Nigel on their success. Meanwhile, of existing group members, **Carlos Lopez Vaamonde** and **Will Koning** have been genotyping hundreds of male *Bombus terrestris*, as part of our goal of quantifying the frequency of worker-produced males in this bumble bee species. Among the students, **Tom Charman** and **Simon Rees** are also each about to start a period of genetic work, using samples of, respectively, the bumble bee *B. distinguendus* and the ant *Formica candida*, which they collected last summer. Finally, **Roselle Chapman**, following a break for maternity leave, has resumed writing up her Ph.D. thesis on urban bumble bees, with a view to submission later in the spring.

**Andrew Bourke**

**UWE, Bristol:** Work continues on the mechanisms underlying brood sorting in *Leptothorax* ants in relation to sorting algorithms for collective robotics. At the end of last year Matt Wilson successfully defended his thesis *Developing metrics for the comparison of sorting and segregation algorithms in a group of minimalist robots*. Sam Scholes presented a talk entitled *Evolution versus engineering - the collective intelligence of sorting; size matters* at the Second International Workshop on the Mathematics and Algorithms of Social Insects, Georgia Institute of Technology, Atlanta, USA, 15–17 December, 2003. Brood sorting in *Leptothorax* is also the topic of one of the short episodes in the science documentary series *We want that too* directed by Karin Schagen for Dutch public television, VPRO. The episode should be available on the web after the broadcast scheduled for March. The group was also involved in the research cluster on *Swarm Intelligence* within the EPSRC initiative on novel computation.

**Ana Sendova-Franks**

## **Books and Journals**

**Memorial book of 14th IUSSI Congress in Sapporo** (from Seigo Higashi, via North American Section newsletter)

The following book in memory of the 14th IUSSI Sapporo Congress was recently issued from Hokkaido

University Press, and would you please deliver the following information to all members of your IUSSI Section.

Title: "**Genes, Behaviors and Evolution of Social Insects**" (314 pp)

Edited by T. Kikuchi, N. Azuma and S. Higashi; Published by Hokkaido University Press

Contents: chapters by Chris Starr, T Kubo, Tom Seeley, Diane Wheeler, K Slessor, Bob Jeanne, our own Koos Boomsma, Dave Queller, S Aoki, J Duffy, S Price and T Itino

Hardcover, with 13 color plates; Available through: [export@maruzen.co.jp](mailto:export@maruzen.co.jp); Price: 95 US\$ including postage

Relaunch of **Myrmecologische Nachrichten/Myrmecological News** (communicated by Birgit S Schlick-Steiner and Florian M Steiner)

“May we inform you on the relaunch of the journal „Myrmecologische Nachrichten / Myrmecological News“? The relaunch includes broadening of the scope, streamlining of the reviewing process, and the formation of an Advisory Board consisting of reknowned myrmecologists. We would like to invite you to choose this journal as a publication organ!”

**Aims & Scope:** Myrmecologische Nachrichten / *Myrmecological News* is a non-commercial journal, printed once a year or as soon as c. 80 pages are edited. It is devoted to all fields of ant research, with focus on the Palaearctic Region. Submission of manuscripts dealing with any aspect of ant research in this region is encouraged. Contributions on general aspects of myrmecology are invited as well. All manuscripts will be peer-reviewed.

For further details, please contact Dr. Stefan SCHÖDL, International Research Institute of Entomology, Natural History Museum, Burgring 7, A-1014 Vienna, Austria. e-mail: stefan.schoedl@nhm-wien.ac.at

## Job Vacancies

**Jane Stout** (Trinity College Dublin) has funding and invites applications for a 3 year PhD studentship to investigate **reproductive biology and conservation of rare Irish orchids**. The project aims to determine whether pollination limitation is a factor promoting rarity in protected species of orchid in Ireland. Ultimately, the project will suggest mechanisms for managing orchids and their pollinators. In addition, detailed ecological examination of sites where these orchid species are found will contribute to national monitoring programmes. Applicants must have a first or upper second class Bachelors, or Masters, degree in a biological science (Biology, Ecology, Environmental Sciences or similar). Previous experience in carrying out biological field surveys of higher plants and insects is highly desirable, and competence in statistical analysis would be advantageous. Candidates should be enthusiastic and highly motivated and should hold a full driving licence. For further information, please email Dr Jane Stout ([stoutj@tcd.ie](mailto:stoutj@tcd.ie)).

Applications are invited for a postdoctoral research position in the Department of Ethology, Evolution, Ecology, CNRS UMR 6552, at the University of Rennes 1.

**Chemical communication in cockroaches :** The position is part of an European funded research project called LEURRE and directed by **Jean-Louis Deneubourg** (ULB, Bruxelles). The LEURRE project is part of the theme : Collective intelligence and control of animal colonies. The biological model used is cockroaches.

The theories of auto-organization applied to animal societies have shown that that simple interaction between individuals can lead to development of complex structures and of a collective intelligence that each member of the group, taken individually, is unable to develop alone. In a group of insects, like an aggregate of cockroaches, simple interactions between individuals in the group induce the group to adopt a specific spatial configuration that allows individuals to stay in groups with a stable composition (fidelity to the group) and a stable position. In this context, chemical communication between individuals is extremely important. The study of the mechanisms involved in chemical communication and in recognition between group members is an important part of this research program.

The program of the post-doctoral position is oriented on chemical communication and recognition mechanisms in cockroaches. Applicants should have experience in chromatography applied to invertebrates, identification of cuticular hydrocarbons, etc.

**The position is available from May 2004 until September 2005 (end of the Leurre program).** The successful candidate will join a research group focussing on aggregation and orientation mechanisms in pre-social insects directed by **Colette Rivault** ([colette.rivault@univ-rennes1.fr](mailto:colette.rivault@univ-rennes1.fr)).

This investigation aims to identify the active chemical message used by individuals : - to identify a cockroach as being or not of the same species and - to decide to aggregate with it. Preliminary results indicate that cuticular hydrocarbons are good candidates to be part of the message. The selected cockroach species is *Periplaneta americana*. The identification of this message will help us to understand the rules of communication between individuals and the efficiency of these rules in different experimental situations. The final aim of the project is to deposit this message on robots (INSBOT) whose design is made to lure cockroaches in mixed groups INSBOTS - cockroaches.