

# IUSSI, BRITISH SECTION

(International Union for the Study of Social Insects)  
AUTUMN NEWSLETTER, SEPTEMBER 2004

## Officers of the British Section of the IUSSI

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## Annual Winter Meeting, Friday 10/12/04, Royal Entomological Society London

Provisional programme:

- 10:30 Arrive, coffee, put up posters  
11:00 IUSSI Business Meeting (for all members and potential members)  
11:30 Morning session (Chair: TBA)  
11:30-11:50 Ana Sendova-Franks, University of the West of England, Bristol  
TBA  
11:50-12:10 Carlos Lopez Vaamonde, Institute of Zoology, London  
"Social parasitism by reproductive workers in *Bombus terrestris*"  
12:10-12:30 Elva Robinson (student), University of Sheffield  
"Pharaoh's ants use a negative signal to increase foraging effectiveness"  
12:30-12:50 Duncan Jackson (student), University of Sheffield  
"Pharaoh's ant pheromone trail networks - novel insights"  
12:50 Lunch break  
14:30 Invited talks TBA  
15:30 Coffee  
16:00 2<sup>nd</sup> afternoon session (Chair: TBA)  
16:00-16:20 Jonathan Ellis (student), University of Southampton  
"The specific status of *Bombus ruderatus* and *Bombus hortorum*"  
16:20-16:40 Samina Rutrecht (student), University of Dublin Trinity College  
"Effects of *Nosema bombi* infection in *Bombus lucorum* colonies"

As you can see, there are still slots for potential speakers (the time slots given above are preliminary and may change, depending upon the subjects of currently unsubmitted talks), so please contact Mark Brown (Secretary, [mabrown@tcd.ie](mailto:mabrown@tcd.ie)) as soon as possible if you would like to give a talk at this meeting.

## Other Forthcoming Meetings

Third European Congress on Social Insects, 21 to 26 August 2005, St Petersburg, Russia  
If you are interested in suggesting symposia topics, please get in touch with Prof. Vladilen E. Kipyatkov (President of the Russian Language Section of the IUSSI) E-MAIL: [vk@VK1280.spb.edu](mailto:vk@VK1280.spb.edu)  
Web Page: <http://www.bio.pu.ru/win/entomol/Kipyatkov/index.htm>

Call for Symposia Topics - XV International Congress of IUSSI - July 30 August 4, 2006  
Washington, DC, USA

Proposals for symposia for the XV International Congress of IUSSI are now being solicited from all members of the IUSSI. Suggestions for Plenary speakers will also be accepted. Proposals must include organizer(s) name, address, e-mail, phone and FAX number, and the symposium topic or title plus 3-4 possible speakers. More detailed information will be requested directly from the organizer(s) at a later date. Please send proposals to Walter R. Tschinkel, Dept. of Biological Sciences, Florida State University, Tallahassee, FL, USA, 32306-3050, 850-644-0481 FAX, [tschinkel@bio.fsu.edu](mailto:tschinkel@bio.fsu.edu). Deadline for submission of initial information has been extended to November 1, 2004.

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

**Belfast:** After one year, the Insect Ecology group of Dr. **Robert Paxton** has settled in at Queen's University Belfast. The work makes progress in the now well equipped laboratory and first results are soon to be published. Dr. **Tek Tay** and Dr. **Elaine O'Mahony** are working within the EU-project "Biodiversity, impact and control of Microsporidia in bumble bee (*Bombus* spp.) pollinators" (<http://www.entom.slu.se/res/Bumble%20Bee/>) and have been investigating the ribosomal RNA of microsporidian parasites of European bumble bees. I am commencing my second year as a PhD student, and have started to develop microsatellites for Microsporidia in bumble bees. Together with **Sandra Mustafa** a visiting Diplom (MSc) student from Tübingen, Germany, who is undertaking her research work in our group, we have investigated further the natural infection rate of Microsporidia in different Irish bumble bees species. Second year PhD student **Antonella Soro** is working on the population genetics and nestmate recognition of primitively social sweat bees (*Lasioglossum*) and has also begun to develop microsatellites for her species, likewise our Brazilian PhD student **João-Paolo Holanda-Neto** for his cashew plants and research into the pollination biology and mating structure of cashew. **Marion Zobel**, a PhD student from the University of Tübingen, should be in residence again with us this autumn to continue her work on the social and genetic structure of the sweat bee *Lasioglossum malachurum* and alternative queen nesting strategies. Tomás **Murray** is at the end of his first year of his PhD on the conservation genetics and distribution of Irish bees and has just finished his first field season – a long one given all the rain we have experienced. He is working in collaboration with Dr. Mark Brown and Dr. Úna Bradley Trinity College, Dublin. Finally, Dr. **Lidiya Russina** and her PhD student **Lesya Firman**, from Kersson University in the Ukraine, visited us in March for the second time to continue their studies on social evolution in polistine wasps.

Julia Klee

**Copenhagen – instead of a standard report, I asked Koos to give us a review of the two now-finished EU-research networks based around social insects, as an incentive for future applications (see below for Nicolas Chaline's student view of the closing conference):**

### **Integrative Social Insect Research in Europe during the last 10 years**

In the early 1990's, a relatively large number of internationally trained young Europeans became established in permanent academic positions throughout the continent. They all knew each other from, among others, the world congresses of the International Union for the Study of Social Insects (in particular the IUSSI congresses in Munich, 1986 and Bangalore, 1990) and used the

1994 IUSSI congress in Paris to discuss further collaboration. A direct incentive for this was the recent extension of European Union research programs, with a significant increase in funding for fundamental science in the EU's fourth Framework Program (FP4). In particular, individual pre- and postdoctoral (*Marie Curie*) fellowships and the research-training networks (providing among other things a whole series of postdoctoral fellowships) were considered attractive for collaborative social insect research.

Coordinated by J.J. Boomsma, an application for the research training network *Social Evolution: An Integrated Study of the Effect of Kinship, Communication, Productivity and Disease* was submitted in 1995 and was funded. Participating labs were Aarhus (J.J. Boomsma), Florence (S. Turillazzi), Keele (E.D. Morgan), Sheffield (F.L.W. Ratnieks), Uppsala (P. Pamilo), Würzburg (B. Hölldobler) and Zürich (P. Schmid-Hempel), with Erlangen (J. Heinze) and Leuven (J. Billen) associated as subcontractors.

This network ([www.zi.ku.dk/personal/jjboomsma/eu-network.html](http://www.zi.ku.dk/personal/jjboomsma/eu-network.html)), which also became known as the *Social Evolution TMR network* (Training and Mobility of Researchers) lasted five years (1996-2000), funded 26 person-years of postdoctoral employment (candidates were required to move country to qualify for appointment) and organized six large workshops and a closing symposium near Florence in August 2000. The central objective of the network was to establish a productive inter-disciplinary and trans-national research program on social insects in Europe, where geneticists, ecologists, evolutionary biologists, behavioural biologists, modellers and organic chemists worked together on a project-by-project basis to: 1. Create synergistic combinations of expertise that allowed novel hypotheses to be developed and tested, and 2. Allow a broader training of PhD students and postdocs across disciplines.

In 1999, an expanded consortium submitted an application for a follow-up network under the EU's fifth Framework Program (FP5) for the network "*INSECTS: Integrated Studies of the Economy of Insect Societies*", and obtained funding, although under the explicit stipulation that this would be the last time that this consortium would be eligible with this research-training program. Participants in the *INSECTS* network ([www.zi.ku.dk/eunet/](http://www.zi.ku.dk/eunet/)) were Copenhagen (to where J.J. Boomsma has moved), Florence (S. Turillazzi), Keele (G. Jones and E.D. Morgan), Lausanne (L. Keller), Oulu (to where P. Pamilo has moved), Regensburg (to where J. Heinze has moved), Sheffield (F.L.W. Ratnieks), and Zürich (P. Schmid-Hempel), while Helsinki (L. Sundström), Leuven (J. Billen) and Würzburg (B. Hölldobler) are subcontractors. This network has drawn to a close, commemorated with the recent symposium in Helsingør, Denmark (2-6 September 2004). At the end of 2004, the *INSECTS* network will have realized another 24 person-years of postdoctoral funding and will have organized eight training workshops and two international symposia.

The two networks have had a significant impact on global social insect research. In the years 1996-2003, they published 120 papers in peer-reviewed journals that were collaborations between two or more network groups. This joint productivity came in addition to the normal publications of network groups and can thus be considered as the direct spin-off of the network grants. For the last three years, on average about one third of all social insect papers that appeared in the journals *Nature*, *Science*, *PNAS* and *Proceedings of the Royal Society Series B* have been (co-)authored by members of the network and fifty-one (19%) of the 270 talks given at the 14<sup>th</sup> World Congress of IUSSI in Sapporo in 2002 were singly or jointly authored by researchers from *INSECTS* network groups.

**Dublin:** Despite a rather rainy summer, the group at Trinity has been moving rapidly forward. *John McMullan* got the first manuscript of his PhD accepted, so those of you who saw his talk at last year's winter meeting got a sneak preview! This was the first paper to come solely out of the Irish group, and so was celebrated with suitable amounts of the black stuff. The pressure is on *Samina (Rutrecht)* and *Mario (Ruiz-Gonzalez)* now! They both had a busy summer, attending (with *Mark Brown*) their first big conference – the Jacques Monod meeting on the Evolutionary Ecology of Host-Parasite associations – and presenting their work. The meeting was excellent (although unfortunately the timing stopped us from being at the *INSECTS* meeting in Helsingør – see below) and we've all come back fired up to take our systems further. Not to be outdone, Mark and John just returned the 1<sup>st</sup> European Congress of Apidology (held in Udine, Italy), which was a very diverse

meeting, and not just about honey bees.... *Úna Bradley* spent her summer, ably assisted by an undergraduate from the department (*Andrew Byrne*) sampling solitary and social bees across the southern half of Ireland, as well as making a trip to the Aran Islands to catch the aberrant *muscorum*. We're all looking forward to seeing what comes out of all her data.

**Mark Brown**

**Institute of Zoology:** Congratulations to **Roselle Chapman**, who had her Ph.D. viva in September and passed subject to minor amendments. **Zjef Pereboom** made a welcome, if brief, return to the Institute over the summer, to help carry out collections for our joint project with Mark Brown at Trinity College Dublin on the island forms of the bumble bee, *Bombus muscorum*. Zjef is currently based at the University of Utrecht. **Seirian Sumner** visited Panama for further work on her project on gene expression in the caste determination of polistine wasps. **Will Koning** has recently left the Institute to start a Ph.D. in biomathematics at University College London; we wish him every success. **Carlos Lopez Vaamonde** is still with us, carrying out analyses and further manuscript preparation for the project on reproductive conflicts in bumble bees. In this he has recently been ably assisted by a volunteer, **Eric Lucas**. **Tom Charman** and **Simon Rees** have both completed busy field seasons and are shortly to enter the third year of their Ph.Ds.

**Andrew Bourke**

**Leicester – the newest lab using social insects in the UK!** I arrived in Leicester from Zürich in July and have been busy setting up the lab and finding out where the paper clips are kept. Leicester has recently had a bit of a boost on the zoology side. There are two fish behavioural ecology groups, an insect neurobiology lab and several groups using *Drosophila* to study circadian rhythms. My work here will initially look at the interaction between the immune system and learning in bumblebees. Also I will try to delve further into an interesting result I got in Zürich, that bees conspecific directed behaviour seems to be controlled by how similar their immune systems are.

**Eamonn Mallon**

**Southampton:** An update on bumblebee-related activities in Dave Goulson's lab. We currently have two main bee grants: 1) "Modelling bumblebee populations in agricultural ecosystems", jointly with Rothamsted and Newcastle. Three years, funded by BBSRC. Dr Mairi Knight is currently using microsat markers to quantify and compare foraging ranges in four common bumblebee species, *terrestris*, *lapidarius*, *pratorum* and *pascuorum*. Unexpectedly, *terrestris* has proved to be rather rare on farmland, but otherwise this work is coming along well and we hope to have a manuscript out soon. The other partners are doing various things with an overall aim of producing and testing a model that will predict the suitability of farmland as bumblebee habitat based on remote-sensed data. 2) "Effects of habitat fragmentation on the population structure of rare bumblebees". Three year project, funded by Leverhulme Trust, starts Sept 04 following 1 year pilot. Ben Darvill has just got back from a second summer of island-hopping in the Hebrides, sampling bumblebees to assess the effects of population size and degree of isolation on genetic structure. Current foci of effort are *muscorum* and *jonellus*. Joe Waters (currently an RA at Rothamsted) is joining us to work on this project as a PhD student from Nov 04, funded by the C.B. Dennis Trust. This project is running in parallel with the work of Jon Ellis (PhD student) on population genetics and ecology of 3 southern UK carder bees, *muscorum*, *sylvarum* and *humilis*. Other current interests: we are trying to develop markers to reliably distinguish native UK *terrestris audax* from European *terrestris terrestris*, to assess the impact of this non-native race. We are also examining bumblebee forage choice in relation to pollen protein content, to try to work out why bumblebees seem to like pollen from some plants but not others (Dr Mick Hanley).

**Dave Goulson**

## Conference reports

**Insects closing symposium, Helsingør 2-6 September 2004:** After four years of successful collaborations and excellent meetings and workshops, the INSECTS network was obliged to go out with a bang, and indeed it did! I was fortunate enough, with the help of the IUSSI British section, to be able to attend the conference, set near Hamlet's castle in Denmark. It took place in the great facilities of Lo-Skolen, which included a bar, pool tables and even a bowling alley. Participants came from all over the world and were not limited to the network laboratories. It gave plenty of opportunity for fruitful discussions. The plenary lectures were all excellent; in particular Stuart West's talk on cooperation and conflict in things other than social insects and Ben Oldroyd's talk on the search for the selfish gene in anarchistic honey bees. The other talks covered the whole spectrum of social insect research, from optimization to behavioural ecology, chemical ecology, conservation and genomics, which made it difficult to choose between parallel sessions. All in all, this was probably the best INSECTS meeting and great credit must be given to Koos Boomsma, David Nash and all the Copenhagen team for organising it. On top of the scientific content, it greatly strengthened the links between all the students and post-docs involved in the network and gave the basis for even more successful collaborations in the future.

**Nicolas Chaline, University of Sheffield**

## Job Vacancies

3 positions in the US...

**POSTDOC at UT Austin** We are seeking a post doc to locate in Argentina for a couple of years to help with our work on *Pseudacteon* phorid flies that attack *S. invicta* and related fire ants. One primary role of this position from the project's perspective would be to take a lead in analyzing data and writing up work already completed or in progress in the lab of Patricia Folgarait at University of Quilmes near Buenos Aires Argentina. Candidates with excellent skills in statistics and special programs like Arc View will be preferred. The Folgarait lab conducts basic studies on the ecology and life histories of *Pseudacteon* species in Northern Argentina, and the focus is on those species that might work well in biological control of fire ants in the US. There would be ample opportunity to conduct novel collaborative field and/or laboratory work with the Folgarait group. This is mainly basic research aimed at an applied goal. The post doc position will be funded at the University of Texas but the person hired would be situated essentially full time in Argentina under the direct supervision of Folgarait. Fluency in Spanish is essential. This position can be available by early Fall '04 and its details are negotiable. Please contact: Larry Gilbert, Professor, Section of Integrative Biology Director, Brackenridge Field Laboratory, The University of Texas Austin, TX 78712 Tel. 512-471-4705 FAX 512-471-3878  
<http://uts.cc.utexas.edu/~gilbert/>

**NSF-funded Graduate Research Assistantship in Social Insect Neuroethology** A three year, half-time (summer and one academic quarter/year) graduate research assistantship is available in my lab for research on brain and behavioral plasticity in tropical eusocial paper wasps (Hymenoptera: Vespidae). Teaching assistant support is guaranteed for the rest of the year. Research support includes salary and benefits, and travel and living expenses associated with annual field research in Costa Rica, Central America. Field work is conducted in cloud forest habitat in the Monteverde area (<http://www.monteverdeinfo.com/>). The project includes developmental and experimental studies of targeted brain regions (mushroom bodies) and their functional role in behavioral differences among wasp workers. The project is comparative in approach: we will be performing similar studies on species with simple and relatively complex societies, in order to assess how brain/behavior relationships have evolved along with changes on social complexity. Main methods include field observations/behavioral data collection, and neuroanatomical and stereological analyses of brain morphology, including brain region volumes and neuronal complexity. Students interested in pursuing a PhD in Animal Behavior can enter my lab at the University of Washington (Seattle) by applying to either the Psychology Department (<http://web.psych.washington.edu/graduate/>) or the Biology Department (<http://depts.washington.edu/biology/graduate.htm>). For more information contact Prof. Sean O'Donnell at [sodonnell@u.washington.edu](mailto:sodonnell@u.washington.edu), tel. (206) 543-2315. See my web page for more information: <http://faculty.washington.edu/sodonnell/> The University of Washington is an Affirmative Action/Equal Opportunity Employer.

**Teaching/Research Postdoctoral Position in Animal Behavior at Cornell** Applications are invited for a Postdoctoral Teacher/Researcher in the Department of Neurobiology and Behavior (NB&B), Cornell University. The successful candidate will have a 50/50 split of responsibilities between teaching and research. Each year, the postdoc will teach an upper-level, lecture-based course in the general area of animal (possibly including human) behavior on a specific

subject that complements the current course offerings of the department (see <http://www.nbb.cornell.edu/neurobio/index.html>). Salary will be within the range of \$35,568 - \$45,058 per year, depending on experience. An annual \$5,000 research allowance will come with the post. This position will be offered on a fixed-term contract for a period of three years. The starting date is flexible, ranging up to September 2005. Informal inquiries may be addressed to Professor Paul W. Sherman ([pws6@cornell.edu](mailto:pws6@cornell.edu)) or Professor Thomas D. Seeley ([tds5@cornell.edu](mailto:tds5@cornell.edu)). Candidates should send a detailed CV, a statement of research plans, and a statement of courses that they feel qualified to teach. They should also arrange to have three letters of reference submitted on their behalf. All materials should be sent to Animal Behavior Postdoc Search, The Chairman's Office, Department of Neurobiology and Behavior, Cornell University, Ithaca, New York 14850. The review of applications will begin on September 1, 2004. Cornell University is an Affirmative Action/Equal Opportunity Employer.

...and 1 in South Africa:

Postdoctoral position studying the effect of honeybee brood pheromones on the success of *A.m. capensis* social parasites, University of Stellenbosch, South Africa

A full-time Postdoctoral Research position is available from 2005 at the University of Stellenbosch. The position is supported from a combined University postdoctoral grant and National Research Foundation grant, and is tenable until the end of 2006 (ZAR 115 000 per annum including a ZAR 12 000 relocation allowance). The appointee will join the research group of Dr Theresa Wossler with the primary objective of identifying and quantifying larval pheromones of the two southern African honeybee subspecies and the role of brood pheromones in reproductive regulation, particularly in the so-called *capensis* calamity. Applicants should be proficient in gas chromatography and who can bring new ideas and techniques in pheromone analysis to the research group. Knowledge of honeybee biology is also necessary. The preferred starting date is February 1st 2005. Interested applicants should send CV, names and e-mail addresses for three references, and a one-page letter of interest including a proposed start date to Theresa Wossler at [wossler@sun.ac.za](mailto:wossler@sun.ac.za). Closing date is 22 October 2004. General information about the University may be found at: <http://www.sun.ac.za/index.asp>

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