

IUSSI, BRITISH SECTION

(International Union for the Study of Social Insects)
AUTUMN NEWSLETTER, SEPTEMBER 2002

Editor/Secretary's Note

Dear Fellow Members of the British Section,

At the XIV international meeting of the IUSSI in Sapporo, Japan, the following officers were elected to serve on the international committee of the IUSSI: Secretary General - Wolfgang Kirchner, President - Walter Tschinkel, Editor of *Insectes Sociaux* - Johan Billen, Associate editors of *Insectes Sociaux* - Penny Kukuk, Yves Roisin. Other officers that volunteered their services at the meeting were: Conservation officer - Donat Agosti; Archivist - Chris Starr; Webmaster - David Nash. The election of Walter Tschinkel to the office of president is in association with the selection of Washington D.C. as the site of the next international congress in summer 2006.

The next newsletter is due on 15th March 2002. I would be very grateful, if you could send me e-mail messages with items of interest to include in it: news of people, people moving, new people, travel adventures, new projects, new books, meetings, events, advertisements, suggestions, proposals, etc.

With best wishes and looking forward to seeing you at our Annual Winter Meeting in London on 6th December,

Ana Sendova-Franks, 15th September 2002, UWE

Officers of the British Section of the IUSSI

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Contact him with: information and suggestions for the web site
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, 6 December 2002

- Venue** Royal Entomological Society, 41 Queen's Gate, London, SW7 5HR
- Organisers** *Program* Prof. Francis Ratnieks, Department of Animal and Plant Sciences, Sheffield University, Western Bank, Sheffield, S10 2TN, U.K. Tel: ++ (0)114 2220070; Fax: ++ (0)114 222 0002; E-mail: f.ratnieks@sheffield.ac.uk
Venue Dr. Andrew Bourke, Institute of Zoology, Regent's Park, London, NW1 4RY, U.K., tel: ++(0)20 7449 6676 (direct); ++(0)20 7449 6610 (messages); fax: ++(0)20 7586 2870; E-mail: andrew.bourke@ioz.ac.uk
- Flyer** A flyer with the programme and further details of the meeting is enclosed with this newsletter.

New Webmaster and the British Section Web Site

Due to personal reasons, Angus Stokes had to withdraw from his role as the section's Webmaster. I am sure all members of our Section will join me in expressing our gratitude to him for establishing and maintaining the IUSSI British Section web site. Thank you Angus, for your service.

At the section's meeting within the XIVth IUSSI International Congress in Sapporo this summer, Dr. David Nash kindly agreed to step in as the new Webmaster for our section. Please note the new web site address and David's contact details on the first page of this newsletter.

Please visit our new web site and send David your contact details and information about yourselves for the 'Who's Who' section. Those who already have an entry in this section, please check for any necessary corrections or updates and contact David accordingly.

A copy of this newsletter and the enclosed flyer with information about the Annual Winter Meeting will be made available on line at the British Section's web site.

At the congress in Sapporo, David also agreed to be the new Webmaster for the IUSSI homepage at <http://www.iussi.org/>. This site provides links to other sections, news, information on meetings and resources. Remember to have a look and contact David with any news, suggestions, corrections, etc.

And some other web news, the German-speaking section of the IUSSI and the European IUSSI now have web pages as was agreed after the Berlin conference. Although they are still under construction you can access them at <http://www.biologie.uni-regensburg.de/Zoologie/Heinze/de/links.html>.

Electronic Distribution of the Newsletter?

The idea for distributing the section's two newsletters per year electronically has been circulating for some time. In my view, the time is ripe to put this idea to the test. Ninety-six percent of the current 95 members of the section have an e-mail address. We have already distributed some information for meetings and seminars via e-mail. A copy of the newsletter has been available on the web for several years. Distributing the newsletter electronically either via e-mail or/and by putting a printable copy on the section's web site, to those who find this method convenient, could save a lot of paper and other resources.

Please indicate your preference for the method of receiving your copy of the newsletter in the membership form at the next round of renewals early in 2003.

Membership for 2002

Welcome to new members! We are always pleased to hear from people who would like to join. Please sign students, postdocs, colleagues, etc. I would like to remind those valued members who have missed to **renew their membership for 2002** to get in touch with our Treasurer. Even if you do not wish to renew your membership, please let Andrew Bourke know about it.

Other Forthcoming Meetings

The Mathematics of Social Insects Returns... Many of us still remember the meeting *From Worker to Colony*:

Understanding the Organisation of Insect Societies, 7th and 8th December 2001, organised by Dr. David Sumpter at the Isaac Newton Institute, Cambridge, UK. This was also our Annual Winter Meeting for last year and was very successful. You might be interested to see articles about the meeting in the 29th March 2002 issue of *Science* 295(5564):2357 and the on-line publication of UK Non-linear News at <http://www.amsta.leeds.ac.uk/Applied/news.dir/issue27.dir/art/colony.html>.

Following this success, there are now plans for a follow-up meeting *The Mathematics of Social Insects Returns* in Atlanta Georgia, November/December 2003. It is organised primarily by Dr. Tucker Balch (whom you might remember from his presentation in Cambridge last year) and Dr. David Sumpter, with the possible involvement of Dr. Carl Anderson. This is still just a preliminary idea. If you have any suggestions, please contact either David (sumpter@maths.ox.ac.uk) or Tucker (tucker@cc.gatech.edu) at this stage.

Two conferences in St. Petersburg... Both of the following announcements are from Professor Vladilen E. Kipyatkov,

Symposium Organiser, President of the Russian Language Section of the IUSSI. His contact details are: Department of Entomology, Faculty of Biology and Soil Sciences, St. Petersburg State University, 7/9 Universitetskaya nab., St. Petersburg, 199034, RUSSIA; Tel: (+7) 812 5347335; Fax: (+7) 812 4277310; E-mail: vk@vk1280.spb.edu. For further details of both conferences, please contact Prof. Kipyatkov.

INTERNATIONAL SYMPOSIUM *LIFE CYCLES IN SOCIAL INSECTS: BEHAVIOURAL, ECOLOGICAL AND EVOLUTIONARY APPROACH*, St. Petersburg, Russia, 22-27 September 2003

The Russian Language Section of the International Union for the Study of Social Insects (IUSSI) will organise the international symposium devoted to the life cycles in social insects, including behavioural, ecological, ecophysiological and evolutionary aspects of the problem. Our main purposes are to bring together the people interested in the problem, including leading experts, to create the opportunity for productive discussions, to evaluate the present-day status of the empirical and theoretical research and to stimulate further studies in this important field. The traditional life history theory generally ignores social insects. So we really need the new theoretical approaches to be developed specially for life cycles evolution in social insects. In order not to overlook important facts and ideas the presentations only loosely connected with the main problem of the symposium are also welcomed.

The symposium will be held at St. Petersburg State University, the eldest university in Russia, in the year of celebration of a 300 year jubilee of St. Petersburg. The symposium venue will be the University Conference Centre which is situated next to the main building of the University just in the historical centre of St. Petersburg near Neva river and houses the conference hall, the restaurant with common and V.I.P. halls, bar, cafe and student canteen.

The official language of the symposium will be English. The main form of presentation will be oral papers, but a poster session will be also arranged. There will be a participation fee of \$150 (or \$75 for accompanying persons and for students) to cover the costs of publicity, production of the symposium materials including the book of abstracts, welcome party, coffee breaks, and social programme.

Accommodation will be possible in the University Hotel at a price of about \$50 per night for an apartment with single or double room, a kitchen and a bathroom in it (breakfast is not included); places in shared double rooms will be also available at a half of this price. The accommodation in higher class hotels in the city will also be organised after special request but at substantially higher prices. The accommodation at lower prices for students will be also available. Breakfasts, lunches and dinners

will be served for the participants in the University Centre restaurant at a separate price. The information on the costs will be confirmed in the Second Announcement one year ahead of the symposium.

I would be very much obliged if you pass this announcement on to any colleagues who may be interested in coming to the meeting. I would be also grateful for any suggestion concerning the symposium, e.g. invited speakers, session names, themes to discuss, publication of the proceedings, etc.

If you wish to receive further information please ensure that you register your interest by contacting me through any of the routes indicated below. Communication via e-mail is greatly preferable for me and thus I would like to have the e-mail addresses of all the participants.

THIRD EUROPEAN CONGRESS ON SOCIAL INSECTS, St. Petersburg, Russia, August 2005

Dear Colleagues,

After the very successful meeting of the European sections of the IUSI in September 2001 in Berlin the members of the Russian Language Section have long been discussing the suggestion of the German Section to organize the next European meeting in Russia and finally decided to accept it. However, following the tradition started in 1991 when the First European Congress on Social Insects was organized by Dr. J. Billen in Leuven, Belgium, we would prefer to name our meeting the Third European Congress on Social Insects. The European Congresses must alternate with International IUSI Congresses, and should, therefore, be organized every 4 years.

Thus, we announce now that the Third European Congress on Social Insects will be held at St. Petersburg State University during the second half of August 2005. The first announcement of the Congress will be issued and sent out in autumn 2003.

Please, help us to distribute this first information among all members of the IUSI. We would be also grateful for any suggestion concerning the Congress, e.g. invited speakers, session names, themes to discuss, publication of the proceedings, etc. With the best regards, Professor Vladilen E. Kipyatkov

Insect Sociobiology of the Northern Neotropics...

INTERNATIONAL UNION FOR THE STUDY OF SOCIAL INSECTS (IUSI), BOLIVARIAN SECTION -- Fifth Biennial Meeting, First Announcement

The Bolivarian Section of IUSI is the organizing body for insect sociobiology in the northern neotropics. The section's next general meeting and research conference will take place on 11-15 July 2003 at the University of the West Indies, Trinidad & Tobago.

Members of all IUSI sections who work on neotropical social arthropods or general problems applicable to them are cordially invited to participate in this meeting. The languages of the meeting will be English and Spanish.

Trinidad & Tobago have a continental biota broadly harmonic with that of the nearby South American mainland. The meeting will include an all-day field excursion, and there will be additional opportunities for field trips and ecotourism. Arrangements for official collecting permits are part of the organization of the meeting.

Colleagues interested in receiving further announcements or other information may contact the Organizing Committee through: Christopher K. Starr, Department of Life Sciences, University of the West Indies, St Augustine, Trinidad & Tobago; E-mail: ckstarr99@hotmail.com; tel (868) 662-2002 ext 3096; fax (868) 663-5241

News from Social Insect Labs in the British Section

Institute of Zoology...Two new Ph.D. students start work with Andrew Bourke on 1 October. Simon Rees will be working on a project entitled 'Conservation management and ecological genetics of the Black Bog Ant, *Formica candida*', funded by a NERC award to the Institute.

Simon will be co-supervised by Mike Bruford at Cardiff University, where Simon will be registered, and the project is collaborative with Glenda Orledge of the University of Bath. Tom Charman will be working on a project entitled 'Ecology and conservation of the scarce Great Yellow Bumble Bee, *Bombus distinguendus*', funded by a NERC award to the University of Cambridge. Tom will be co-supervised by Rhys Green at the Department of Zoology, University of Cambridge, where Tom will be registered, and the work will be supported as a CASE project by RSPB. Tom's work will enable us to pursue the *B. distinguendus* research started by Rob Hammond when at the Institute. Simon and Tom graduated this summer from Bangor and Cambridge respectively. Over the summer, Kate Holehouse has been working in the group on the effects of non-lethal DNA sampling on the foraging efficiency and survivorship of free-flying *B. terrestris* workers. Kate is a Temporary Technician funded by RSPB.

Andrew Bourke

Copenhagen...The social insect group in Copenhagen has been continuing to expand this summer, as we are joined by more butterfly researchers and visiting students, while at the same time we have lost one of our most recent additions. **Kellie Palmer** joined us as the **BABE** (Beekeeping and *Apis* Biodiversity) postdoc in March, and left to return to Australia in mid August. During her time here she was very productive, and will hopefully get a couple of publications out of the data she collected, as well as making things a lot easier for her replacement. This will be **Annette Bruun Jensen** (middle names are quite important in Denmark, as there aren't quite enough other names to go round...), who has been working for the last few years at the Copenhagen Veterinary Laboratory. She will be joining us here in early October.

In June our two new **MacMan** postdocs arrived, and were immediately put to work as this year proved to be one of the earliest *Maculinea* seasons on record. **Ian Wynne** joins us from University College London, where he has been working on butterfly genetics and ecology for many years. **Inga Zeisset**'s background is in frog genetics, but she has already thrown herself wholeheartedly into the task of developing microsatellite markers for *Maculinea* butterflies. I am particularly pleased to have both Ian and Inga here, not only because I now have other people to talk with about lycaenid butterfly / ant interactions, but because they are both great people, full of ideas, and fun to do fieldwork with. I'm looking forward to the next few years of *Maculinea* / *Myrmica* research.

The other area of our research that has started to expand tremendously in the last few months is the study of supercolonial ants, prompted by the work of **Jes S e Pedersen** who joined us as a junior lecturer last year. **Lisbeth B rgesen** has been quietly beaver away with her work on Pharaoh's ants for many years now, and has now started some more formal collaborations with Jes, as well as keeping up her long-term contacts with other researchers throughout Europe. As part of this collaboration, she visited **Johan Billen**'s lab in Leuven, Belgium, earlier this year, and in return we hosted three of Johan's group this summer, **Dieter Eelen** and **Tania Lauwers** who visited us for a few days and **Diane Allard**, who spent a week here.

Sylvia Cremer, who has been working with J rgen Heinze in Regensburg, will be joining us in October as the new INSECTS postdoc, and will also be working on supercolonial ants, particularly the recently discovered *Lasius neglectus*. In preparation for this, she joined Jes and me for a trip to Austria and Hungary at the end of August, where we met up with the Viennese PhD students **Birgit Schlick-Steiner** and **Florian Steiner** who hosted us for an exhausting but very enjoyable few days of collecting *Lasius* for genetic analysis, and visiting some of the Austrian *Maculinea alcon* and *M. rebeli* field sites.

We also have a visiting student from the Netherlands, **Tim Engelkes**, who will be with us until around Christmas, and who is also working with Jes on *Lasius neglectus* populations in Europe. Take it away, Tim...

My name is Tim Engelkes, 27 years young. After many years of being interested in everything that would come on my way I finally got fascinated by the beautiful world of biology. I studied biology for 4 years at the University of Amsterdam, the Netherlands. Here I did a MSc-project on climate reconstruction by the means of pollen analysis from a peat bog in Northern England. In May of this year the opportunity for a project abroad

came up. At the moment I am doing my final MSc-project at the department of Population Ecology at the Zoological Institute in Copenhagen. I am focusing on an invasive ant species which has a potential to dominate over other ant species in its new environment. One of the things to be investigated is the genetic structure of the different populations which are scattered all over Europe, and still the uniqueness of this species is questionable. Enough reasons for me to spend a couple of months in Denmark.

Another exchange student, **Andrea Krug**, has also just joined us for five months from the Humbolt University, Berlin. She will be working with **Boris Baer** and **Bill Hughes** on immunological responses of leafcutter ants. We're also looking forward to the return of **Daniele Fanelli**, who visited us from **Steffano Turillazzi's** group in Florence early last year. He'll be with us again for a few months from mid September, learning more DNA lab techniques.

David Nash

Team:: Antzz, University of Helsinki...In the beginning of June the team acquired two new happy participants.

Emma Vitikainen, our new student arrived first to start her master's project in the wonderful scenery of Tvärminne Zoological Station. One week later Cathy Liautard joined her there to start her post-doc on population genetics of *Formica exsecta*. What a wonderful start for a project and for Finnish discovery! Another French discoverer of Southern Finland was Vanya Emilianoff from Ecole Normale Supérieure in Paris, who is just about finish a project on wing loss behaviour in *Formica truncorum*, carried out in Tvärminne as well. Marianne Elias, the other French post-doc of the team, was delighted to introduce them to the Finnish way of life. She got a Marie-Curie grant, which will allow her to officially move back to Helsinki and continue her project for at least one more year, still in close contact with the Oulu group. This will also allow her to continue playing Brazilian music from time to time with her Russian friends.

The hard core of this lively and joyful team is still present. Thanks for their wonderful welcome! Minttu Hannonen was a little stressed when I arrived. Yet, it's very understandable, as in early November she will wear the black dress of a new doctor. Whaouuu! It will be perfectly fine knowing her. Vienna Setälä, Heikki Helanterä and Kalle Trontti are continuing their PhD projects, with some happy events in the middle. Kalle is doing lab work and trying to hurry home to his lovely but also hungry daughter. Vienna is waiting for another happy event and is already on maternal leave. The team is definitely growing! Heikki spent his summer being more interested in the fertility of *Formica* workers. Katja Bargum was another lucky one spending her summer in Tvärminne, she had a successful first field season for her PhD on reproductive partitioning and colony productivity in *Formica fusca*.

Our team leader Lotta Sundström is reaching the top in the academic hierarchy as she has been appointed professor in evolutionary biology at the department since the beginning of August. Perttu Seppä continues his work as a lecturer at the department, and as a lab coordinator in the Molecular Ecology and Systematics laboratory.

Cathy and Heikki Antzz journalists

The Ant Lab at the University of Bristol...welcomes Dr. Anna Dornhaus on a DAAD funded post-doctoral

fellowship. Anna is from Prof. Lars Chittka's group at the University of Würzburg in Germany. She will be working on nest choice and related issues in *Leptothorax albipennis*. The ant lab will also be pleased to see the return of Scott Powell from the first 9-month fieldwork period of his Ph.D. research on army ants on Barro Colorado Island, Panama. Scott will be in the UK for 3 months before he returns once more to his rainforest home. Jay Denny is writing up his doctoral thesis and Liz Langridge continues her Ph.D. studies also on the organization of emigrations in *Leptothorax albipennis* colonies (co-supervised by Ana Sendova-Franks at UWE).

Nigel Franks

Trinity College, Dublin...Social insect research in Trinity College Dublin has got off to a flying start (after a break since John

Breen's departure for other climes). At roughly the same time as I started in the Zoology Department, the Botany Department became home to Jane Stout. Jane, who's PhD work was on scent-marking in bumble bees, is now an Enterprise Ireland Postdoctoral Research Fellow. She is currently working on the evolution and ecology of interactions between exotic plants and native pollinators, using rhododendrons as a study system. As anyone who has observed rhododendrons will know, this means that bumble bees are still a large part of her life!

Bumble bees in Ireland seem very different to their relatives in Switzerland, foraging busily in weather that would send Swiss bees buzzing back to their nests!, so it has been fun getting to know them. In October it all gets a bit more serious, with 3 students starting their PhDs on parasites and social insects. I hope that you'll get to hear about their work in future British section meetings. Speaking of which, **Jane Stout and myself have offered to host the British Section meeting in Dublin in December 2003. We're currently investigating prices, options etc., and hope to make a (very) brief presentation of it at this year's annual meeting on December 6 in London for the section members to consider.**

Mark Brown

Conference Attendance

Duur Aanen (Copenhagen)... Between two fields of research

As a postdoc working on the evolution of fungus-growing termites, I am attending both congresses on social insects as congresses on fungi. This summer it was rather extreme: the IUSSI meeting in Sapporo was followed after one week by the International Mycological Conference (IMCVII) in Oslo. I would like to give a short impression of IMC VII here. First of all: IMC VII with around 1600 participants was much bigger than IUSSI XIV with around 700 participants. This higher number of participants at IMC VII has at least two reasons: the wider taxonomic range covered by this congress but also the wider range of questions addressed. Both the large number of participants and the wide variety of research interests were probably the reason why there were no plenary lectures at the IMC VII. But there was no lack of parallel sessions, on the contrary, up to 10 at a time. I have especially been attending the sessions on evolutionary biology of fungi, which limited the choice but still provided ample opportunities to be choosy.

First of all there were the talks on phylogenies. If anything became clear from these talks it was that you are not very unique when you try to reconstruct phylogenies from DNA sequences... Secondly, it became clear that phylogenies don't tend to solve questions but instead to generate more new ones. Thirdly, there still seem to be many controversies on the algorithms used to reconstruct phylogenies from DNA sequences. A very promising direction in this respect is the Bayesian approach of phylogeny estimation by Markov Chain Monte Carlo simulation. As an aside: an interesting difference between fungal and social insect phylogeneticists is the DNA sequences used: ribosomal DNA is still very dominating for the fungi, whereas it is the mitochondrial coding DNAs in social insects. Probably at least part of the explanation is just historical: some people started using certain DNA sequences and were followed by others.

One of the most exciting fields of the moment I think is experimental evolution. There was one session devoted to this relatively new field. With micro-organisms such as fungi and especially with the fast-growing ones such as yeast, it is possible to follow adaptation to a new environment over the course of experimental

time under controlled conditions. This is very different from what most of us (can) do: we study the result of adaptations that have occurred over evolutionary time. The experiments in experimental evolution are relatively easy: subject a genotype to a new environment (a different glucose concentration for example), subculture it for many generations (1000's) and freeze subsamples at regular intervals. At the end of an experiment the fitness of the adapted strain can be measured at different times after the start of the experiment and a fitness curve can be drawn. In this way many questions can be addressed, for example: does adaptation occur stepwise or gradually and does adaptation occur repeatedly in the same way, or differently. Questions more familiar to social insect people can be addressed using the experimental evolution approach as well. They include questions of levels of selection. An example of this is the different levels of selection that act on mitochondrial DNA: mitochondrial DNA in mitochondria, mitochondria in cells, cells in multicellular organisms and organisms in populations. An experiment was described where parasitic mitochondria (in the so-called 'petite' mutant of yeast where fast-replicating but 'parasitic' mitochondria cause a dwarf-cell phenotype) got a chance when selection between mitochondria within cells was increased relative to selection between cells.

Another interesting field of research in mycology, is the study of different types of incompatibility between fungi. These different types of incompatibility determine to a large extent the degree to which genetic exchange is prevented or not. However, recent research shows that incompatibility can not always prevent genetic exchange. At the conference there was one talk describing nuclear exchange between incompatible genetically different dikaryons, giving rise to new genotypes with different combinations of nuclei and mitochondria! To summarize: it was an interesting summer, with two interesting congresses.

Who is Doing What and Where

Carl Anderson... has now left Regensburg in Germany. In August, he took up a faculty position as the Anderson/Interface Assistant Professor in Natural Systems in the School of Industrial and Systems Engineering at Georgia Tech, Atlanta. His new contact details are: Dr. Carl Anderson, Anderson/Interface Visiting Asst Prof in Natural Systems, School of Industrial and Systems Engineering, Georgia Institute of Technology, Atlanta, GA 30332-0205, USA; E-mail address: carl@isve.gatech.edu; Web: www.duke.edu/~carl.

Books

Recently released... Gadagkar, Raghavendra (2001) *The Social Biology of Ropalidia marginata: Toward Understanding the Evolution of Eusociality*. Harvard University Press; 384 pages ISBN 0-674-00611-9; Cloth edition: \$90.00 / £59.95 / €90.00 (one world price); please visit: <http://www.hup.harvard.edu/catalog/GADSOC.html>;

Bees, Ants & Wasps (Hymenoptera) (3 titles)... *SCELIONID WASPS OF THE PALAEARCTIC (HYMENOPTERA, SCELIONIDAE): SUBFAMILIES TELEASINAE, BAEINAE*. Kononova, SV, Kozlov, MA, 2001; 245x170, 203 b/w figs/maps, 2 indexes, paperback; In Russian, title in English. 439 pp. USD 45.00. A richly illustrated guide to species from two subfamilies of the wasp family Scelionidae occurring in the Palaearctic, with special reference to the fauna of the former Soviet Union and adjacent parts. To order online: <http://www.pensoft.net/notes/9734.stm>

PARASITIC EURYTOMINAE AND EUDECATOMINAE HYMENOPTERANS OF THE PALAEARCTIC. Zerova, MD, 1995 268x180, 125 b/w plates, 3 indexes, hardback In Russian, title, contents and a summary in English. 460 pp. USD 44.00. A richly illustrated guide to certain parasitic wasps of the Palaearctic Region, with data on the taxonomy, biology, ecology and distribution, especially as regards the territory of the former Soviet Union. To order online: <http://www.pensoft.net/notes/9650.stm>

THE INSECTS AND ARACHNIDS OF CANADA, PART 12. THE FAMILIES AND SUBFAMILIES OF CANADIAN CHALCIDOID WASPS (HYMENOPTERA: CHALCIDOIDEA). Yoshimoto, CM, 1984 150x225, b/w. pictures, glossary, indices to names of families, subfamilies, tribes, genera, species; animal and plant hosts, bibliography, paperback In English. 150 pp. USD 37.00. The purpose of this manual is to assist amateur and professional entomologists, technical assistants, and students to recognise the families and subfamilies of chalcidoids, primarily through the use of illustrated keys. This book also contains a discussion and glossary of anatomical terms used in chalcidoid taxonomy, a section of general biology, and a discussion of the biology of each family and subfamily. To order online: <http://www.pensoft.net/notes/9727.stm>

THE ANTS (HYMENOPTERA, FORMICIDAE) OF POLAND. Czechowski, W, Radchenko, A, Czechowska, W, 2002 170x240, b/w morphological drawings, maps, tables, bibliography, hardback In English. 200 pp. USD 34.00. The present book is a monographic study of 98 ant species from 25 genera and four subfamilies whose occurrence in Poland has been reliably reported. To order online: <http://www.pensoft.net/notes/9818.stm>

THE FAUNA AND BIOLOGY OF DIGGER WASPS (HYMENOPTERA, SPHECIDAE) OF KAZAKHSTAN AND CENTRAL ASIA. Kazenas, VL, 2001 80x60/16, 86 b/w figs, paperback In Russian. 334 pp. USD 27.00. A treatise on the sphecoid wasp fauna of, ecology, biology and distribution in Kazakhstan and Central Asia, with a checklist also including some important new synonymies. To order online: <http://www.pensoft.net/notes/9816.stm>

Job Vacancies

Postdoctoral Position in Chemical Communication, CNRS UMR 6552, University of Rennes 1, France

Applications are invited for a postdoctoral research position in the Department of Ethology, Evolution, Ecology, CNRS UMR 6552, at the University of Rennes 1. The position is part of a European LEURRE-funded research project directed by Jean-Louis Deneubourg (Bruxelles). This project 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 initially for one year and can be prolonged to three years. The successful candidate will join a research group focussing on aggregation and orientation mechanisms in pre-social insects led by Colette Rivault.

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-organisation applied to animal societies have shown that that simple interactions between individuals can lead to the 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 the basis for subsequent research. This investigation aims to identify the role of cuticular hydrocarbons and the identification of the active components able to induce aggregation and / or avoidance. In the long run, this research should enable the identification of the functioning mechanisms of aggregates in some species of cockroaches. Then, the use of robots and the programming of their movements within a group of cockroaches should help test the rules of communication between individuals and the efficiency of these rules.

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Insect Postdoc, Chemical Ecology Group, School of Chemistry and Physics, Keele University, U.K.

Applications are invited for a Postdoctoral Researcher to work on the INtegrated Studies of the ECoNomy of insect Societies (INSECTS) project that is a collaboration between the Universities of Copenhagen, Firenze, Keele, Lausanne, Oulu, Regensburg, Sheffield, Leuven, Helsinki, Wurtzburg and the ETH Zurich <http://www.zi.ku.dk/eunet/index.html>. The position available is to work in the Chemical Ecology Laboratories in the School of Chemistry and Physics, Keele University, UK.

The function of the Keele laboratory is to provide chemical expertise to the Network, particularly in the areas of analytical chemistry and organic synthesis. Currently the lab is working on collaborative projects with the Firenze, Sheffield, Wurtzburg and Lausanne laboratories. Its main areas of interest are chemical communication and deciphering the recognition cues used in kin and nestmate recognition. Hence we have a particular interest in developing new methods of analysing and synthesising cuticular hydrocarbons, simple methods for the applying compounds to insect cuticle and designing experiments to test the role of compounds as recognition cues. Current work is also investigating the biosynthesis of cuticular hydrocarbons and structural studies are applying a combination of computational and diffraction techniques to the conformation of these molecules. The project will be tailored to the skills and training needs of the individual researcher and will be co-supervised by the Firenze laboratory.

The ideal candidate will be a chemist, preferably with a background in Chemical Ecology, or a desire move into this area and experience in either analytical or organic synthetic chemistry. Applications from candidates with Biology or Biochemistry backgrounds with an interest in learning chemical techniques and working with analytical instrumentation will also be considered. Experience in working on large collaborative projects will be an advantage.

INSECTS is funded by the European Union (EU) under framework 5 Improving Human Potential Research Training Network Proposal and it is an EU requirement that researchers recruited to this programme must: (1) be under 35 years of age when taking up the position; (2) be an EU citizen or a citizen of an EU related State; (3) work outside their country of origin i.e. UK applicants are not eligible; (4) not work in a country in which they have been resident for more than 18 of the previous 24 months; (5) have a doctoral degree or equivalent. The successful candidate will be expected to undertake research in partner laboratories for periods up to 3 months.

Informal enquiries should be made to Dr. Graeme R. Jones g.r.jones@keele.ac.uk, 00 44 (0)1782 584173. Application forms are available from the Personnel Department, Keele University, Keele, Staffs ST5 5BG or Fax: 00 44 (0)1782 583471 or Email: vacancies@keele.ac.uk. **Closing date: September 30 2002**

Postdoctoral position, Social Evolution in Ants, Helsinki, Finland

Post-doc position in evolutionary biology, and more specifically social evolution in ants. The emphasis is on testing predictions emanating from kin selection theory, especially with respect to intra-colony conflicts and their resolution. I'm looking for people with a background in evolutionary ecology/population genetics, with experience in molecular work and/or modelling, as well as ability for independent work. The post-doc will join a small and enthusiastic group of researchers comprising both PhD students and undergraduates, and will be expected to participate in supervising students. The Department of Ecology and Systematics at the University of Helsinki is very active, with several large research groups in population dynamics, behavioural ecology and metapopulation biology. At present about 30 post-docs and PhD students, both foreign and Finnish work within these groups.

The post is tenable for two years starting 1.1.2003 at the latest. Salary according to local scale ca Ž 2100 per month. **The closing date for applications is Sept 30 2002**, and the following documents should be sent to the address below: 1. Certificate of doctoral degree (copy); 2. Curriculum vitae and publication list; 3. A short description of the applicant's background and research interests; 4. The names and email addresses of two references; 5. Any other documents the applicant wishes to bring to attention. For further information about the project please contact me per email Prof Lotta Sundström, University of Helsinki, Department of Ecology and Systematics, P.O. Box 65, FIN-00014 Helsinki, Finland; Fax: ++9-191 57694; Tel: ++9-191 57695; e-mail: liselotte.sundstrom@helsinki.fi; www: <http://www.helsinki.fi/science/ants/>;

Postdoc, Honey Bee Genomics and Disease, Maryland, U.S.A.

We have funding for a post-doc interested in using genomic approaches to study disease resistance and larval development in honey bees. Goal is to identify and study genes expressed by larval honey bees in response to bacterial pathogens, using subtractive and/or normalized cDNA libraries coupled with microarray screening. Candidate clones will be screened for function and for variable expression across honey bee genotypes and ages. Results will be integrated into an emerging functional-genomics view of honey bee development. Project has laboratory, field, and informatics/comparative evolution components. Sequencing, microarray and computing facilities are available.

Candidates must have a recent Ph.D. in Genetics or related field, and MUST BE A US CITIZEN. Knowledge of molecular-genetic techniques and computational and database skills required. Knowledge of comparative genomics, social insect biology and insect immunity are desirable. This is a 2-year, full-time position, available immediately. Salary is \$44,352 - \$69,099, commensurate with experience, plus benefits. Contact Dr. Jay Evans at 301-504-5143, fax 301-504-8736, e-mail: evansj@ba.ars.usda.gov and send applications to Jay Evans, USDA-ARS, Bee Research Laboratory, Bldg. 476, Beltsville, MD 20705. USDA is an equal opportunity provider and employer.

Please email for more information on the project and possible independent projects. Jay D. Evans; Bee Research Lab/USDA-ARS; BARC-East Bldg. 476; Beltsville, MD 20705 USA; 301-504-5143; fax: 301-504-8736; <http://www.barc.usda.gov/psi/brl/beenome.html>