Volume 99 Issue 2 April 2009

Bulletin of Entomological Research



ISSN 0007-4853

nbridge Univer

Bulletin of Entomological Research

journals.cambridge.org/ber

Aims and Scope

The aims of *Bulletin of Entomological Research* are to further our global knowledge of entomology through the generalisation of research findings rather than providing more entomological exceptions. *Bulletin* publishes high-quality and original research papers, 'critiques' and review articles concerning insects, mites, ticks or other arthropods of economic importance in agriculture, forestry, stored products, biological control, medicine, animal health and natural resource management. The scope of papers addresses the biology, ecology, behaviour, physiology and systematics of individuals and populations. This includes the interactions between species (plants, hosts for parasites, natural enemies and whole communities), novel methodological developments, including molecular biology, in an applied context. *Bulletin* does not publish the results of spray trials.

Bulletin of Entomological Research is published bimonthly by Cambridge University Press

Editor-in-Chief

Dr Bill Symondson

School of Biosciences, Cardiff University, Cardiff CF10 3TL, UK Email: entomology@cambridge.org

Subject Editors

Dr N. Agusti, Spain

- Professor J.S. Bale, University of Birmingham, UK
- Dr P. Billingsley, Sanaria, Maryland, USA
- Dr D.A. Bohan, Rothamsted Research, Hertfordshire, UK
- Dr C. Borgemeister, International Centre of Insect Physiology and Ecology (ICIPE), Kenya
- Dr Chen Xue-Xin, Zhejiang University, China
- Dr P.J. De Barro, CSIRO Entomology, Indooroopilly, Australia
- Dr Ashley P.G. Dowling, University of Arkansas, USA

Dr K. Floate, Agriculture and Agri-Food Canada, Lethbridge, Canada

- Professor D. Giga, Bulawayo, Zimbabwe
- Dr D. Gillespie, Agriculture and Agri-Food Canada, Agassiz, B.C., Canada
- Dr M. Greenstone, Invasive Insect Biocontrol & Behavior Laboratory, Beltsville, USA
- Professor G. Gurr, Charles Sturt University, NSW, Australia
- Professor D.R. Hall, Natural Resources Institute, Kent, UK
- Dr J.D. Harwood, University of Kentucky, USA
- Dr D. Hawthorne, University of Maryland, USA
- Dr T.H. Jones, Cardiff University, UK
- Dr J.D. Knight, Imperial College, Ascot, UK

- Dr O. Kwon, Kyungpook National University, Daegu, Korea
- Dr Liu Shu-Sheng, Zhejiang University, China
- Dr G. Port, University of Newcastle Upon Tyne, UK
- Dr S. Potts, University of Reading, UK
- Dr G. Purvis, University College Dublin, Republic of Ireland
- Dr H. Ranson, Liverpool School of Tropical Medicine, UK
- Professor George Roderick, Berkeley Natural History Museum, Berkeley, USA
- Professor G.H.L. Rothschild, Offham, Kent, UK
- Dr W.E. Snyder, Washington State University, USA
- Dr A.J.A. Stewart, University of Sussex, Brighton, UK
- Dr S. Tanaka, Institute of Insect and Animal Sciences, Tsukuba, Japan
- Dr S.J. Torr, University of Greenwich, Kent, UK
- Professor H. Townson, Liverpool School of Tropical Medicine, UK
- Dr M. Traugott, University of Innsbruck, Austria
- Dr M. Virant-Doberlet, National Institute of Biology, Ljubljana, Slovenia
- Dr W. Weisser, Friedrich-Schiller University, Jena, Germany
- Dr B.A. Woodcock, University of Reading, UK

© Cambridge University Press 2009. Published by Cambridge University Press.

Cover image: Large species of *Orthoptera* photographed in April in Laguna de Medina National Park, Andalucia, Southern Spain.

Photographed by Dr Bill Symondson (BER Editor-in-Chief), Cardiff University.

Bulletin of Entomological Research

Research Papers

Volume 99 Issue 2 April 2009

E.J. Tuck, J.F.C. Windmill and D. Robert Hearing in tsetse flies? Morphology and mechanics of a putative auditory organ	107
M.D. Toews, F.H. Arthur and J.F. Campbell Monitoring <i>Tribolium castaneum</i> (Herbst) in pilot-scale warehouses treated with β -cyfluthrin: are residual insecticides and trapping compatible?	121
N.S. Hari and J. Jindal Assessment of Napier millet (<i>Pennisetum purpureum</i> × <i>P. glaucum</i>) and sorghum (<i>Sorghum bicolor</i>) trap crops for the management of <i>Chilo partellus</i> on maize	131
L. Alamalakala, S.R. Skoda and J.E. Foster Amplified fragment length polymorphism used for inter- and intraspecific differentiation of screwworms (Diptera: Calliphoridae)	139
A. Everard, C.T. Griffin and A.B. Dillon Competition and intraguild predation between the braconid parasitoid <i>Bracon hylobii</i> and the entomopathogenic nematode <i>Heterorhabditis downesi</i> , natural enemies of the large pine weevil, <i>Hylobius abietis</i>	151
A. Gutsche, T. Heng-Moss, G. Sarath, P. Twigg, Y. Xia, G. Lu and D. Mornhinweg Gene expression profiling of tolerant barley in response to <i>Diuraphis noxia</i> (Hemiptera: Aphididae) feeding	163
YH. Yang, YJ. Yang, WY. Gao, JJ. Guo, YH. Wu and YD. Wu Introgression of a disrupted cadherin gene enables susceptible <i>Helicoverpa armigera</i> to obtain resistance to <i>Bacillus thuringiensis</i> toxin Cry1Ac	175
G. Nombela, E. Garzo, M. Duque and M. Muñiz Preinfestations of tomato plants by whiteflies (<i>Bemisia tabaci</i>) or aphids (<i>Macrosiphum euphorbiae</i>) induce variable resistance or susceptibility responses	183
P.J. De Barro and M.T. Coombs Post-release evaluation of <i>Eretmocerus bayati</i> Zolnerowich and Rose in Australia	193
M. Aluja, J. Rull, D. Pérez-Staples, F. Díaz-Fleischer and J. Sivinski Random Mating among <i>Anastrepha ludens</i> (Diptera: Tephritidae) Adults of Geographically Distant and Ecologically Distinct Populations in Mexico	207
Erratum	215

Subscribing organisations are encouraged to copy and distribute this table of contents for non-commerical purposes

Bulletin of *Entomological Research* Volume 99 2009

ISSN: 0007–4853

journals.cambridge.org/ber

Publishing, Production, Marketing, and Subscription Sales Office: Cambridge University Press The Edinburgh Building Shaftesbury Road Cambridge CB2 8RU UK

For Customers in North America:

Cambridge University Press Journals Fulfillment Dept 100 Brook Hill Drive West Nyack New York 10994-2133 USA

Publisher: Katy Christomanou

Bulletin of Entomological Research is an international journal published bimonthly by Cambridge University Press in February, April, June, August, October and December.

Subscription information:

The subscription rates for Volume 99, 2009 (6 issues): Internet/print package: £775.00/\$1500.00 Americas only Internet only: £615.00/\$1195.00 Americas only Print only: £725.00/\$1400.00 Americas only The online edition is available at www.journals. cambridge.org/ber with free table of contents alert (upon registration).

Any **supplements** to this journal published in the course of the annual volume are normally supplied to subscribers at no extra charge.

Back Volumes are available. Please contact Cambridge University Press for further information.

Claims for non-receipt of journal issues will be considered on their merit and only if the claim is received within six months of publication. Replacement copies supplied after this date will be chargeable. US Postmasters: please send address corrections to Bulletin of Entomological Research Cambridge University Press 100 Brook Hill Drive West Nyack New York 10994-2133 USA

Information for Authors

Manuscripts should be submitted online at http:// www.editorialmanager.com/ber. New users should register before submitting a manuscript. Further information about submission is available from the publisher at the given address and is printed on the inside back cover.

Offprints: The author (or main author) of an accepted paper will receive a free PDF of their paper. Paper offprints are available for a fee and should be ordered at proof stage. No page charges are levied by this journal.

Copying: This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA. Organisations in the USA who are registered with the CCC may therefore copy material (beyond the limits permitted by sections 107 and 108 of USA copyright law) subject to payment to the CCC of the per copy fee of \$16.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 0007–4853/2009/\$16.00. Organisations authorised by the Copyright Licensing Agency may also copy material subject to the usual conditions. *For all other use*, permission must be sought from Cambridge or the American Branch of Cambridge University Press.

Disclaimer: The information contained herein, including any expression of opinion and any projection or forecast, has been obtained from or is based upon sources believed by us to be reliable, but is not guaranteed as to accuracy or completeness. The information is supplied without obligation and on the understanding that any person who acts upon it or otherwise changes his/her position in reliance thereon does so entirely at his/her own risk.

Cambridge University Press does not accept responsibility for any trade advertisement included in this publication.

This journal is printed on acid-free paper from renewable sources. Typeset by SR Nova Pvt Ltd., Bangalore, India, and printed by Latimer Trend, Plymouth, UK.