

Volume 87(6) 555–660

December 1997

ISSN 0007–4853

BULLETIN  
— of —  
ENTOMOLOGICAL  
RESEARCH



INTERNATIONAL INSTITUTE OF ENTOMOLOGY  
*An Institute of CAB INTERNATIONAL*

Now available on  
the World Wide Web  
<http://pest.cabweb.org/>

**BULLETIN**  
*of*  
**ENTOMOLOGICAL**  
**RESEARCH**

**Aims and Scope**

*Bulletin of Entomological Research* publishes original research papers, review articles and short communications 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 geographical scope of the *Bulletin* is worldwide. Taxonomic papers are accepted if relevant.

The *Bulletin of Entomological Research* is published bimonthly by CAB INTERNATIONAL.

**Editor-in-Chief**

Dr Mark Tatchell

*Entomological Sciences Department, Horticulture Research International, Wellesbourne CV35 9EF, UK*  
Email: BER@cabi.org

**Executive Editor**

John Badmin

*International Institute of Entomology, 56 Queen's Gate, London SW7 5JR, UK*  
Tel: +44 (0) 171 584 0067/8 Fax: +44 (0) 171 581 1676 Email: BER@cabi.org

**Editorial Board**

- |  |  |
|--|--|
| Professor T.N. Ananthkrishnan, <i>Entomology Research Institute, Loyola College, Madras, India</i> | Dr O. Mochida, <i>National Agricultural Research Centre, Kan'Nondai, Japan</i>                               |
| Dr R. Blackman, <i>The Natural History Museum, London, UK</i>                                      | Dr B. Napompeth, <i>National Biological Control Research Centre, Kasetsart University, Bangkok, Thailand</i> |
| Professor V.K. Brown, <i>International Institute of Entomology, London, UK</i>                     | Dr I.D. Oka, <i>Institute for Food Crops, Bogor, Indonesia</i>   |
| Dr A.G. Cook, <i>Natural Resources Institute, Kent, UK</i>   | Dr A. Polaszek, <i>International Institute of Entomology, London, UK</i>                                     |
| Professor H. Dingle, <i>University of California, Davis, USA</i>                                   | Professor S.E. Reynolds, <i>University of Bath, Bath, UK</i>   |
| Dr R. Gámez, <i>Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Costa Rica</i>      | Dr G.H.L. Rothschild, <i>International Rice Research Institute, Manila, Philippines</i>                      |
| Dr M.J.R. Hall, <i>The Natural History Museum, London, UK</i>                                      | Professor S. Tanaka, <i>National Institute of Sericultural &amp; Entomological Science, Tsukuba, Japan</i>   |
| Professor R. Karban, <i>University of California, Davis, USA</i>                                   | Professor H. Townson, <i>Liverpool School of Tropical Medicine, Liverpool, UK</i>                            |
| Dr R.P. Lane, <i>The Natural History Museum, London, UK</i>  | Dr L.E.M. Vet, <i>Wageningen Agricultural University, Wageningen, The Netherlands</i>                        |
| Dr S.R. Leather, <i>Imperial College, Ascot, UK</i>  | Dr I.P. Woiwod, <i>Rothamsted Experimental Station, Harpenden, UK</i>  |
| Dr A.R. McCaffrey, <i>University of Reading, Reading, UK</i>                                       |  |
| Dr N.J. Mills, <i>University of California, Albany, USA</i>  |  |

© CAB INTERNATIONAL 1997. All rights reserved.

Published by CAB INTERNATIONAL, Wallingford, UK: New York, USA

## Bulletin of Entomological Research

<b>Brockerhoff, E.G. &amp; Kenis, M.</b> Oviposition, life cycle, and parasitoids of the spruce cone maggot, <i>Strobilomyia anthracina</i> (Diptera: Anthomyiidae), in the Alps.....	555
<b>Evans, G.A. &amp; Polaszek, A.</b> Additions to the <i>Encarsia</i> parasitoids (Hymenoptera: Aphelinidae) of the <i>Bemisia tabaci</i> -complex (Hemiptera: Aleyrodidae).....	563
<b>Foster, S.P., Harrington, R., Devonshire, A.L., Denholm, I., Clark, S.J. &amp; Muggleston, M.A.</b> Evidence for a possible fitness trade-off between insecticide resistance and the low temperature movement that is essential for survival of UK populations of <i>Myzus persicae</i> (Hemiptera: Aphididae).....	573
<b>Guedes, R.N.C., Kambhampati, S., Dover, B.A. &amp; Zhu, K.Y.</b> Biochemical mechanisms of organophosphate resistance in <i>Rhyzopertha dominica</i> (Coleoptera: Bostrichidae) populations from the United States and Brazil.....	581
<b>Guirao, P., Beitia, F. &amp; Cenis, J.L.</b> Biotype determination of Spanish populations of <i>Bemisia tabaci</i> (Hemiptera: Aleyrodidae).....	587
<b>Mayo, G.M., Austin, A.D. &amp; Adams, M.</b> Morphological and electrophoretic taxonomy of the Australian eucalypt leaf-blister sawfly genus <i>Phylacteophaga</i> (Hymenoptera: Pergidae): a potential major pest group of eucalypts worldwide.....	595
<b>McCall, P.J., Wilson, M.D., Dueben, B.D., de Clare Bronsvort, B.M. &amp; Heath, R.R.</b> Similarity in oviposition aggregation pheromone composition within the <i>Simulium damnosum</i> (Diptera: Simuliidae) species complex.....	609
<b>Owusu-Daaku, K.O., Wood, R.J. &amp; Butler, R.D.</b> Variation in Y chromosome meiotic drive in <i>Aedes aegypti</i> (Diptera: Culicidae): a potential genetic approach to mosquito control.....	617
<b>Sowig, P.</b> Niche separation in coprophagous beetles: a comparison of two multivariate approaches.....	625
<b>Wekesa, J.W., Yuval, B., Washino, R.K. &amp; de Vasquez, A.M.</b> Blood feeding patterns of <i>Anopheles freeborni</i> and <i>Culex tarsalis</i> (Diptera: Culicidae): effects of habitat and host abundance.....	633
<b>Williams, I.S., Dewar, A.M. &amp; Dixon, A.F.G.</b> The effect of host plant-induced stomach precipitate on the ability of <i>Myzus persicae</i> (Hemiptera: Aphididae) to transmit sugarbeet yellowing viruses.....	643
Short Communication	
<b>Chadee, D.D.</b> Effects of forced egg-retention on the oviposition patterns of female <i>Aedes aegypti</i> (Diptera: Culicidae).....	649
Book Reviews.....	653
Index of Authors (Volume 87).....	657

© CAB INTERNATIONAL, 1997

All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronically, mechanically, by photocopying, recording or otherwise, without prior permission of the copyright owner.

# Bulletin of Entomological Research

Volume 87 1997

ISSN: 0007-4853

## **Publishing, Production, Marketing, and Subscription Sales Office:**

CAB INTERNATIONAL  
Wallingford  
Oxon OX10 8DE  
UK  
Tel: +44(0)1491 832111  
Fax: +44 (0)1491 826090  
Email: [cabi@cabi.org](mailto:cabi@cabi.org)  
Telex: 847964 (COMAGG G)

## **For Customers in North America:**

CAB INTERNATIONAL  
198 Madison Avenue  
New York  
NY 10016  
USA  
Tel: 212 726 6490 or 212 726 6491  
[Toll-free: 1800 528 4841]  
Fax: 212 686 7993  
Email: [cabi-nao@cabi.org](mailto:cabi-nao@cabi.org)

CAB INTERNATIONAL also has regional offices in Malaysia, Trinidad & Tobago, and Kenya.

**Publisher:** Philip Edge

**Publishing Editor:** David Nicholson

**Product Manager (Marketing):** Louise Breinholt

The *Bulletin of Entomological Research* is an international journal published bimonthly by CAB INTERNATIONAL in February, April, June, August, October and December.

## **Special sales and supplements:**

This journal accepts advertising and inserts. We also provide bulk reprints of suitable papers to meet teaching or promotional requirements. The journal also publishes abstracts and proceedings on behalf of academic and corporate sponsors. Please contact David Nicholson at the Wallingford address for further details.

## **Subscription information:**

The subscription rates for Volume 87, 1997 (6 issues) are:

Non-member country:	£245.00
Member country*:	£196.00
US Dollars (Americas and Japan only):	\$430.00

(\* Member countries include UK, Canada, India, China, Australia, New Zealand. For a full list please apply to CAB INTERNATIONAL)

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 CAB INTERNATIONAL 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.

**Despatch:** deliveries outside the UK are by ASP Printflow Airsaver unless other arrangements are made. Customers requiring airmail delivery should indicate clearly their requirements and add an additional 10% to the relevant subscription price.

**US POSTMASTERS:** please send address corrections to CAB INTERNATIONAL at the Wallingford address.

## **Information for Authors**

Three copies of the manuscript and artwork should be sent to:

John Badmin  
International Institute of Entomology  
56 Queen's Gate  
London SW7 5JR  
UK

**Notes for Authors** are available from this address if not printed in this issue of the journal.

**Offprints:** The author (or main author) of an accepted paper will receive 50 free offprints and a copy of the journal issue in which their paper is published. Additional offprints are available for a fee and should be ordered at proof stage. No page charges are levied by this journal.

**Copyright:** CAB INTERNATIONAL, 1997. All rights reserved: permission for reproduction of any part of the journal (text, figures, tables or other matter) in any form (on paper, microfiche or electronically) should be sought directly from the Publisher, or a licence permitting restricted copying obtained from the Copyright Licensing Agency, Tottenham Court Road, London W1P 9HE, UK, or in the USA by the Central Clearance Center, 27 Congress Street, Salem MA 01970.

**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.

CAB INTERNATIONAL does not accept responsibility for any trade advertisement included in this publication.

This journal is printed on acid-free paper from renewable sources  
Printed at the University Press, Cambridge.