

Volume 88(1) 1-108

February 1998

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

The *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 A.R. McCaffery, <i>University of Reading, Reading, UK</i> |
| Dr R. Blackman, <i>The Natural History Museum, London, UK</i> | Dr N.J. Mills, <i>University of California, Berkeley, USA</i> |
| Professor V.K. Brown, <i>International Institute of Entomology, London, UK</i> | Dr O. Mochida, <i>National Agricultural Research Centre, Kan Nondai, Japan</i> |
| Dr A.G. Cook, <i>Natural Resources Institute, Kent, UK</i> | Dr B. Napompeth, <i>National Biological Control Research Centre, Kasetsart University, Bangkok, Thailand</i> |
| Professor H. Dingle, <i>University of California, Davis, USA</i> | Dr I.D. Oka, <i>Institute for Food Crops, Bogor, Indonesia</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 & 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 Wellcome Trust, 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>IACR-Rothamsted, Harpenden, UK</i> |

© CAB INTERNATIONAL 1998. All rights reserved.

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

Bulletin of Entomological Research

Editorial.....	1
Atanassova, P., Brookes, C.P., Loxdale, H.D. & Powell, W. Electrophoretic study of five aphid parasitoid species of the genus <i>Aphidius</i> (Hymenoptera: Braconidae), including evidence for reproductively isolated sympatric populations and a cryptic species.....	3
Chey, V.K., Holloway, J.D., Hambler, C. & Speight, M.R. Canopy knockdown of arthropods in exotic plantations and natural forest in Sabah, north-east Borneo, using insecticidal mist-blowing	15
Floate, K.D. Off-target effects of ivermectin on insects and on dung degradation in southern Alberta, Canada	25
Heinz, K.M. Host size-dependent sex allocation behaviour in a parasitoid: implications for <i>Catolaccus grandis</i> (Hymenoptera: Pteromalidae) mass rearing programmes	37
Hoddle, M.S., Van Driesche, R.G., Sanderson, J.P. & Minkenberg, O.P.J.M. Biological control of <i>Bemisia argentifolii</i> (Hemiptera: Aleyrodidae) on poinsettia with inundative releases of <i>Eretmocerus eremicus</i> (Hymenoptera: Aphelinidae): do release rates affect parasitism?	47
Odulaja, A., Mihok, S. & Abu-Zinid, I.M. The magnitude of site and time interaction effect in tsetse fly (Diptera: Glossinidae) trap catches	59
Smith, K.E. & Wall, R. Estimates of population density and dispersal in the blowfly <i>Lucilia sericata</i> (Diptera: Calliphoridae)	65
Souissi, R. & Le Rü, B. Influence of the host plant of the cassava mealybug <i>Phenacoccus manihoti</i> (Hemiptera: Pseudococcidae) on biological characteristics of its parasitoid <i>Apoanagyrus lopezi</i> (Hymenoptera: Encyrtidae)	75
Teulon, D.A.J., Leskey, T.C. & Cameron, E.A. Pear thrips, <i>Taeniothrips inconsequens</i> (Thysanoptera: Thripidae) life history and population dynamics in sugar maple in Pennsylvania	83
van Huis, A. & de Rooy, M. The effect of leguminous plant species on <i>Callosobruchus maculatus</i> (Coleoptera: Bruchidae) and its egg parasitoid <i>Uscana lariophaga</i> (Hymenoptera: Trichogrammatidae).....	93
Book Reviews	101

© CAB INTERNATIONAL, 1998

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 88 1998

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

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

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 88, 1998 (6 issues) are:

Non-member country: £275.00

Member country*: £220.00

US Dollars (Americas and Japan only): \$485.00

(* 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, 1998. 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.