

CAMBRIDGE

JOURNALS

Animal Health Research Reviews

Published in collaboration with the Conference of Research
Workers in Animal Diseases

Editor-in-Chief

C. Gyles, *University of Guelph, Canada*

Animal Health Research Reviews provides an international forum for the publication of reviews and commentaries on all aspects of animal health. Papers include in-depth analyses and broader overviews of all facets of health and science in both domestic and wild animals. Major subject areas include physiology and pharmacology, parasitology, bacteriology, food and environmental safety, epidemiology and virology. The journal will be of interest to researchers involved in animal health, parasitologists, food safety experts and academics interested in all aspects of animal production and welfare.

For free online content visit:
<http://journals.cambridge.org/ahrsample>

Free email alerts

Keep up-to-date with new content

<http://journals.cambridge.org/ahr-alerts>



Animal Health Research Reviews
is available online at:
<http://journals.cambridge.org/ahr>

To subscribe contact Customer Services

Americas:

Phone +1 (845) 353 7500

Fax +1 (845) 353 4141

Email

subscriptions_newyork@cambridge.org

Rest of world:

Phone +44 (0)1223 326070

Fax +44 (0)1223 325150

Email journals@cambridge.org

Price Information

is available at:

<http://journals.cambridge.org/ahr>



CAMBRIDGE
UNIVERSITY PRESS

CAMBRIDGE

JOURNALS

animal

Published for The Animal Consortium
www.animal-journal.eu

Editor-in-Chief

Michel Doreau, *INRA, Clermont-Theix, France*

animal publishes original cutting-edge research, 'hot' topics and horizon-scanning reviews on animal-related aspects of the life sciences at the molecular, cellular, organ, whole animal and production system levels.

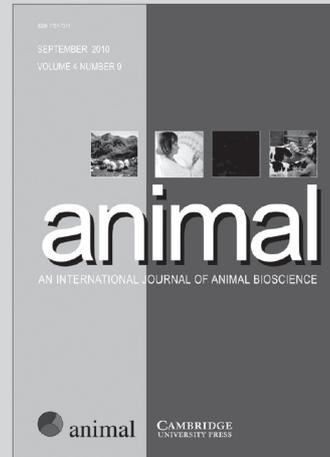
The main subject areas include: breeding and genetics; nutrition; physiology and functional biology of systems; behaviour, health and welfare; farming systems, environmental impact and climate change; product quality, human health and well-being.

For free online content visit:
<http://journals.cambridge.org/anmsample>

Free email alerts

Keep up-to-date with new content

<http://journals.cambridge.org/anm-alerts>



animal

is available online at:
<http://journals.cambridge.org/anm>

To subscribe contact Customer Services

Americas:

Phone +1 (845) 353 7500

Fax +1 (845) 353 4141

Email

subscriptions_newyork@cambridge.org

Rest of world:

Phone +44 (0)1223 326070

Fax +44 (0)1223 325150

Email journals@cambridge.org

Price Information

is available at:

<http://journals.cambridge.org/anm>



CAMBRIDGE
UNIVERSITY PRESS

CAMBRIDGE

JOURNALS

Journal of Dairy Research

Published for the Institute of Food Research and the Hannah Research Institute

Executive Editors

D. G. Chamberlain, *Hannah Research Institute, UK*

E. C. Needs, *Hannah Research Institute, UK*

Journal of Dairy Research publishes original scientific research on all aspects of mammary biology and dairy science including: the physiology, biochemistry, cell biology and endocrinology of lactation; animal husbandry, milk production, composition, preservation, processing and separation; biotechnology and food science; properties of milk proteins and other components; dairy products such as cheese, fermented milks and spreads; relevant studies in bacteriology, enzymology and immunology, the use of milk products in other foods; and the development of methods relevant to these subjects.

Price information

is available at: <http://journals.cambridge.org/dar>

Free email alerts

Keep up-to-date with new material – sign up at <http://journals.cambridge.org/dar-alerts>



Journal of Dairy Research

is available online at:

<http://journals.cambridge.org/dar>

To subscribe contact Customer Services

in Cambridge:

Phone +44 (0)1223 326070

Fax +44 (0)1223 325150

Email journals@cambridge.org

in New York:

Phone +1 (845) 353 7500

Fax +1 (845) 353 4141

Email

subscriptions_newyork@cambridge.org



CAMBRIDGE
UNIVERSITY PRESS

CAMBRIDGE

JOURNALS

Epidemiology and Infection

Editor-in-Chief

Norman Noah, London School of Hygiene and Tropical Medicine, UK

Epidemiology and Infection publishes original reports and reviews on all aspects of infection in humans and animals. Particular emphasis is given to the epidemiology, prevention and control of infectious diseases. The field covered is broad and includes the zoonoses, tropical infections, food hygiene, vaccine studies, statistics and the clinical, social and public health aspects of infectious disease. Papers covering microbiology and immunology, which have an epidemiological relevance, are part of this broad field. Papers come from medical and veterinary scientists worldwide. It has become the key periodical in which to find the latest reports on recently discovered infections and new technology. For those concerned with policy and planning for the control of infections, the papers on mathematical modelling of epidemics caused by historical, current and emergent infections, will be of particular value.

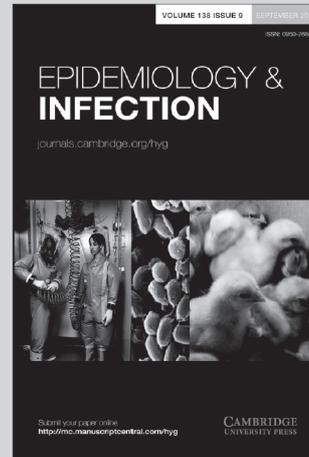
Price information

is available at: <http://journals.cambridge.org/hyg>

Free email alerts

Keep up-to-date with new material – sign up at
<http://journals.cambridge.org/alerts>

For free online content visit:
<http://journals.cambridge.org/hyg>



Epidemiology and Infection
is available online at:
<http://journals.cambridge.org/hyg>

To subscribe contact Customer Services

in Cambridge:

Phone +44 (0)1223 326070

Fax +44 (0)1223 325150

Email journals@cambridge.org

in New York:

Phone +1 (845) 353 7500

Fax +1 (845) 353 4141

Email

subscriptions_newyork@cambridge.org



CAMBRIDGE
UNIVERSITY PRESS

CAMBRIDGE

JOURNALS

Journal of Helminthology

Editor

John Lewis, Royal Holloway, University of London, UK

Journal of Helminthology publishes original papers and review articles on all aspects of pure and applied helminthology, particularly those helminth parasites of environmental health, medical or veterinary importance. Research papers on helminths in wildlife hosts, including plant and insect parasites, are also published along with taxonomic papers contributing to the systematics of a group. The journal will be of interest to academics and researchers involved in the fields of human and veterinary parasitology, public health, microbiology, ecology, epidemiology and biochemistry.

Price information

is available at: <http://journals.cambridge.org/jhl>

Free email alerts

Keep up-to-date with new material – sign up at
<http://journals.cambridge.org/jhl-alerts>



Journal of Helminthology

is available online at:
<http://journals.cambridge.org/jhl>

To subscribe contact Customer Services

in Cambridge:

Phone +44 (0)1223 326070
Fax +44 (0)1223 325150
Email journals@cambridge.org

in New York:

Phone +1 (845) 353 7500
Fax +1 (845) 353 4141
Email
subscriptions_newyork@cambridge.org

For free online content visit:
<http://journals.cambridge.org/jhl>



CAMBRIDGE
UNIVERSITY PRESS

Parasitology

Back volumes. Vols. 1–71: Inquiries should be addressed to Wm. Dawson & Sons Ltd, Cannon House, Folkestone, Kent. Vols. 72 onwards: quotations for parts still in print may be obtained from Cambridge or the American Branch of Cambridge University Press.

Copying. This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA. Organizations in the USA who are also registered with C.C.C. may therefore copy material (beyond the limits permitted by sections 107 and 108 of US copyright law) subject to payment to C.C.C. of the per-copy fee of \$16.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 0031–1820/2011 \$16.00.

Organizations authorized by the Copyright Licensing Agency may also copy material subject to the usual conditions.

ISI Tear Sheet Service. 3501 Market Street, Philadelphia, Pennsylvania 19104, USA, is authorized to supply single copies of separate articles for private use only.

For all other use, permission should be sought from Cambridge or the American Branch of Cambridge University Press.

Claims for missing issues can only be considered if made immediately after receipt of the subsequent issue.

Advertising. Details of advertising in Parasitology may be obtained from the publisher.

Online submission. Authors are encouraged to submit their manuscripts online. Go to <http://mc.manuscriptcentral.com/par/> to open an author's account for Parasitology. Manuscript Central is helping to improve the speed of the publication process for the journal.

Front Cover illustration: To a comparative biologist, if evolution deals the cards, systematics provides the means to play the hand. Three key questions underpin systematics: what is it, where is it found and where does it come from? Individually, answers to these questions provide parasitologists with a wealth of useful information, but only when addressed collectively can parasites and parasitism be fully understood over different taxonomic, spatial and evolutionary scales.

© Cambridge University Press 2011

The Edinburgh Building, Cambridge CB2 8RU, United Kingdom
32 Avenue of The Americas, New York, NY 10013-2473, USA
477 Williamstown Road, Port Melbourne, VIC 3207, Australia
C/ Orense, 4, Planta 13 28020 Madrid, Spain
Lower Ground Floor, Nautica Building, The Water Club, Beach Road,
Granger Bay, 8005 Cape Town, South Africa

Printed in the United Kingdom at the University Press, Cambridge

PARASITOLOGY

CONTENTS

- Systematics as a cornerstone of parasitology: overview and preface**
D. T. J. Littlewood 1633
- Eukaryotic systematics: a user's guide for cell biologists and parasitologists**
Giselle Walker, Richard G. Dorrell, Alexander Schlacht and Joel B. Dacks 1638
- Do molecules matter more than morphology? Promises and pitfalls in parasites**
S. L. Perkins, E. S. Martinsen and B. G. Falk 1664
- Synergy advances parasite taxonomy and systematics: an example from elasmobranch tapeworms**
Janine N. Caira 1675
- Integrating molecular and morphological approaches for characterizing parasite cryptic species: implications for parasitology**
Steven A. Nadler and Gerardo Pérez-Ponce De León 1688
- Taxonomic approaches to and interpretation of host specificity of trematodes of fishes: lessons from the Great Barrier Reef**
T. L. Miller, R. A. Bray and T. H. Cribb 1710
- Towards a new role for vector systematics in parasite control**
Magdalena Zarowiecki, Jose R. Loaiza and Jan E. Conn 1723
- The evolution of host specificity in dove body lice**
Kevin P. Johnson, Jason D. Weckstein, Sarah E. Bush and Dale H. Clayton 1730
- Genome sequences reveal divergence times of malaria parasite lineages**
Joana C. Silva, Amy Egan, Robert Friedman, James B. Munro, Jane M. Carlton and Austin L. Hughes 1737
- Estimating phylogenetic relationships despite discordant gene trees across loci: the species tree of a diverse species group of feather mites (Acari: Proctophylloidae)**
Lacey L. Knowles and Pavel B. Klimov 1750
- The molecular systematics of blowflies and screwworm flies (Diptera: Calliphoridae) using 28S rRNA, COX1 and EF-1 α : insights into the evolution of dipteran parasitism**
Laura M. McDonagh and Jamie R. Stevens 1760
- Invasive species threat: parasite phylogenetics reveals patterns and processes of host-switching between non-native and native captive freshwater turtles**
O. Verneau, C. Palacios, T. Platt, M. Alday, E. Billard, J.-F. Allienne, C. Basso and L. H. Du Preez 1778
- Parasite diversity as an indicator of environmental change? An example from tropical grouper (*Epinephelus fuscoguttatus*) mariculture in Indonesia**
H. W. Palm, S. Kleinertz and S. Rückert 1793
- Incorporating parasite systematics in comparative analyses of variation in spleen mass and testes sizes of rodents**
Nicolas Ponlet, Kitipong Chaisiri, Julien Claude and Serge Morand 1804
- Bacterial symbiont and salivary peptide evolution in the context of leech phylogeny**
Mark E. Siddall, Gi-Sik Min, Frank M. Fontanella, Anna J. Phillips and Sara C. Watson 1815