



# Journal of Tropical Ecology

---

VOLUME 8 PART 1 FEBRUARY 1992

---

Published for INTECOL and the ICSU Press by  
Cambridge University Press

# Journal of Tropical Ecology



## Editor

Dr Adrian G. Marshall, Institute of Tropical Biology, c/o Department of Zoology, University of Aberdeen, Aberdeen AB9 2TN, Scotland, UK.

## Editorial address

Editor-JTE, Department of Plant & Soil Science, Cruickshank Bld, University of Aberdeen, Aberdeen AB9 2UD, Scotland, UK.

## Editorial Board

*INTECOL Tropical Ecology Working Group*

Dr F. P. Malaisse, Jardin Botanique National de Belgique, 1860 Meise, Belgium.

### *North America*

Dr D. Lieberman, Department of Biology, University of North Dakota, Grand Forks, North Dakota 58202-8238, USA.

### *South America*

Dr E. Medina, IVIC Centro de Ecología, Aptdo. 1827, Caracas 1010-A, Venezuela.

### *Europe*

Dr M. J. A. Werger, Department of Plant Ecology & Evolutionary Biology, University of Utrecht, PO Box 800.84, 3508 TB Utrecht, The Netherlands.

## Deputy Editor

Dr M. D. Swaine, Institute of Tropical Biology, c/o Department of Plant & Soil Science, University of Aberdeen, Aberdeen AB9 2UD, Scotland, UK.

## Editorial assistant

Heather M. Sabnis

### *West Africa*

Professor D. U. U. Okali, Department of Forest Resources Management, University of Ibadan, Ibadan, Nigeria.

### *South Asia*

Professor P. S. Ramakrishnan, School of Environmental Sciences, Jawaharlal Nehru University, New Delhi - 110 067, India.+

### *South-east Asia and the Far East*

Dr Gong Wooi-Khoon, School of Biological Sciences, Universiti Sains Malaysia, 11800 Penang, Malaysia.

### *Australasia and the Pacific*

Professor J. Kikkawa, Department of Zoology, University of Queensland, St Lucia, Brisbane - 4067, Australia.

© International Association for Ecology (INTECOL).

(Published for INTECOL and the ICSU Press by Cambridge University Press).

**Subscriptions:** The *Journal of Tropical Ecology* (ISSN 0266-4674) is published quarterly. The subscription price of Volume 8 is £79 (USA and Canada US \$149) for institutions; £33.00 (USA and Canada US \$65) for individuals; £20.00 for individuals in developing countries; airmail £14.50 extra; single parts available at £21.00 (USA and Canada US \$40.00) each plus postage. Four parts form a volume. Orders, which must be accompanied by payment, may be sent to a bookseller, subscription agent or direct to the publishers: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU. Orders from the USA and Canada should be sent to the Cambridge University Press, 40 West 20th Street, New York, NY 10011-4211, USA. Copies of the journal for subscribers in the USA and Canada are sent by air to New York to arrive with minimum delay. Second class postage paid at New York, NY, and at additional mailing offices.

POSTMASTER: send address changes in USA and Canada to *Journal of Tropical Ecology*, Cambridge University Press, 110 Midland Avenue, Port Chester, New York, NY 10573-9864. Claims for missing issues should be made immediately on receipt of the subsequent issue.

*Continued on inside back cover*