


# Biological Invasions

A Global Perspective

**SCOPE 37**



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SCOPE 37

## Biological Invasions

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A Global Perspective

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*Published on behalf of the  
Scientific Committee on Problems of the Environment (SCOPE)  
of the  
International Council of Scientific Unions (ICSU)  
by*

**JOHN WILEY & SONS**

Chichester · New York · Brisbane · Toronto · Singapore

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*Library of Congress Cataloging-in-Publication Data*

Biological invasions: a global perspective/edited by J. A. Drake and  
H. A. Mooney.

p. cm.—(SCOPE; 37)

Papers from a number of national and international workshops  
resulting from a SCOPE program on the ecology of biological  
invasions initiated in mid-1982.

Includes bibliographies and index.

ISBN 0 471 92085 1

1. Biological invasions—Congresses. 2. Ecological succession—  
Congresses. I. Drake, James A., 1954— II. Mooney, Harold A.  
III. International Council of Scientific Unions. Scientific  
Committee on Problems of the Environment. IV. Series: SCOPE  
(Series); 37.

QH353.B56 1989

574.5—dc19

88-20765

CIP

*British Library Cataloguing in Publication Data available*

Phototypesetting by Thomson Press (India) Limited, New Delhi  
Printed and bound in Great Britain by Courier International, Tiptree, Essex

- SCOPE 1: Global Environmental Monitoring 1971, 68pp (out of print)
- SCOPE 2: Man-Made Lakes as Modified Ecosystems, 1972, 76pp (out of print)
- SCOPE 3: Global Environmental Monitoring Systems (GEMS): Action Plan for Phase 1, 1973, 132 pp (out of print)
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Environment and Development, proceedings of SCOPE/UNEP Symposium on Environmental Sciences in Developing Countries, Nairobi, February 11–23, 1974, 418pp (out of print).

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- SCOPE 37: Biological Invasions: a Global Perspective, 1989, 528pp
- SCOPE 38: Ecotoxicology and Climate, 1989, 392pp

Funds to meet SCOPE expenses are provided by contributions from SCOPE National Committee, an annual subvention from ICSU (and through ICSU, from UNESCO), an annual subvention from French Ministère de l'Environnement, contracts with UN Bodies, particularly UNEP, and grants from Foundations and industrial enterprises.

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75016 PARIS



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## Preface

This volume represents the culmination of activity resulting from a SCOPE (Scientific Committee on Problems of the Environment) program on the Ecology of Biological Invasions. This program was initiated in mid-1982 and had its origins at the Third International Conference on Mediterranean Ecosystems held in Stellenbosch, South Africa in 1980. At that conference the considerable impact of invading plants on South African natural ecosystems was highlighted. Particularly noteworthy was that these invasions involved woody plants, such as *Hakea*, *Acacia*, and *Pinus*, and that they were aggressively entering and even transforming natural systems. The scientific consensus at that time was that invasions were only successful into disturbed ecosystems. It seemed therefore that the time had come to take a new look at the nature of invading plants and animals. At first the idea was to focus on the five mediterranean-climate regions of the world, all of which shared common invading species. However, in keeping with the mandate of SCOPE to advance knowledge on environmental problems of global significance the scale of the project became worldwide in perspective. At the General Assembly of SCOPE held in Ottawa in June 1982 the program was approved. The specific questions the program addressed were:

1. What are the factors that determine whether a species will be an invader or not?
2. What are the site properties that determine whether an ecological system will be relatively prone to, or resistant to, invasion?
3. How should management systems be developed using the knowledge gained from answering these questions?

The primary focus of the program was on those animals, plants, and micro-organisms that have been successful invaders of non-agricultural regions with an emphasis on those that have disrupted ecosystem function. It was felt that the SCOPE program should build on the considerable knowledge base available on invaders of agricultural systems but that it should concentrate its efforts on natural systems where there had been considerably less attention.

In order to carry out this mandate a scientific advisory committee was established consisting of:

H. A. Mooney, USA (Chairman)  
F. di Castri, France  
R. H. Groves, Australia  
F. J. Kruger, South Africa  
M. Rejmánek, Czechoslovakia and USA  
M. Williamson, Great Britain  
J. A. Drake of the USA served as the program coordinator.

The program has consisted of a number of national workshops (Australia, Czechoslovakia, Great Britain, Netherlands, USA, and South Africa) summarizing regional knowledge, and a series of international working groups addressing special problems. The latter included invasions into nature reserves, invasions into mediterranean-climate ecosystems, and modelling the invasion process. Finally a concluding international workshop was held to synthesize the regional and working group results into cross-continental comparisons. This book is the result of this culminating workshop held at, and co-sponsored by, the East-West Center of Honolulu, Hawaii.

The chapters in this book represent in large part extensions and refinements of treatments given to a topic early in the program. The shift in focus is from regional to cross-continental. A number of chapters, however, cover topics that were not addressed in the national workshops yet were important for a global treatment even though the information base was difficult to address for one reason or another. In total then, these chapters represent an assessment of where we are in our evaluation and understanding of the dramatic rearrangement of the earth's biota that has taken place over the last few centuries.

A list of the publications resulting from the entire SCOPE program is given in Appendix I. Appreciation is expressed to the scientists of many nations who participated in this SCOPE endeavor, to the A. W. Mellon Foundation for support of the effort, and to Anne B. Ferrell for continuous support.