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0521455561 - The Brackish-water Fauna of Northwestern Europe: An Identification Guide to Brackish-water Habitats, Ecology and Macrofauna for Field Workers, Naturalists and Students

R. S. K. Barnes

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Brackish water can be found wherever sea water mixes with fresh water. The abundant estuaries and coastal lagoons of northwestern Europe are therefore brackish-water habitats, as are a variety of smaller, and often manmade, coastal ponds. Such environments possess a rich fauna, as witnessed by their use by birds and fish as feeding and/or nursery areas. Many are also under threat from rising sea levels, the construction of sea defences, coastal land reclamation and drainage, and pollution.

This book examines and reviews the ecology of the brackish-water animals and habitats of northwestern Europe, and forms the first complete identification guide to the fauna of these ecologically important areas. The keys are specifically designed to be used with living material, and illustrations are provided for all the species, making identification easy. Field workers, naturalists and students interested in Europe's coastal fringe will find this an indispensable reference.

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# The brackish-water fauna of northwestern Europe

An identification guide to brackish-water habitats, ecology  
and macrofauna for field workers, naturalists and students

**R.S.K. BARNES**

*Department of Zoology and St Catharine's College,  
University of Cambridge, UK*



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CAMBRIDGE UNIVERSITY PRESS

Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, São Paulo

Cambridge University Press

The Edinburgh Building, Cambridge CB2 2RU, UK

Published in the United States of America by Cambridge University Press, New York

[www.cambridge.org](http://www.cambridge.org)

Information on this title: [www.cambridge.org/9780521455299](http://www.cambridge.org/9780521455299)

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First published 1994

*A catalogue record for this publication is available from the British Library*

*Library of Congress Cataloguing in Publication data*

Barnes, R. S. K. (Richard Stephen Kent)

The brackish-water fauna of northwestern Europe: a guide to brackish-water habitats, ecology, and macrofauna for field workers, naturalists, and students/R.S.K. Barnes.

p. cm.

Includes bibliographical references (p. ) and index.

ISBN 0 521 45529 4 (hc). – ISBN 0 521 45556 1 (pb)

1. Brackish water fauna – Europe. 2. Brackish water fauna – Europe – Identification.

3. Brackish water ecology – Europe. I. Title.

QL253.B37 1994

591.94–dc20 93-39843 CIP

ISBN-13 978-0-521-45529-9 hardback

ISBN-10 0-521-45529-4 hardback

ISBN-13 978-0-521-45556-5 paperback

ISBN-10 0-521-45556-1 paperback

Transferred to digital printing 2005

Cambridge University Press

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**For Morvan Keri and Annaëlle Gwenllyn**

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## Preface

I remember, several years ago, listening regularly to *Round Britain Quiz*, a radio programme which posed such esoteric questions as: 'What have the shooting of birds, the treatment of certain wingless insects, and books on brackish-water animals in common?'. The answer was always obvious once it has been explained.

I have on my bookshelves the authoritative 2400-page *Synopsis and Classification of Living Organisms* published by McGraw-Hill in 1982. If one seeks to look up in that book the Diplura, Protura and Collembola – three groups of small wingless insects – one uncovers an interesting situation. The introduction to the account of the Insecta indicates that the three groups above are not in fact insects and infers that they will therefore be covered in that section of the treatise that is devoted to myriapods. On turning to that section, however, it is obvious that its authors, like many others, consider that they *are* insects, and so they are not covered there either. Alone amongst groups of living organisms then known, the Diplura, Protura and Collembola were omitted from that otherwise encyclopaedic work because no-one wished to lay claim to them.

Brackish-water animals have suffered from the same kind of problem. Fresh water biologists have assumed that they fall within the province of the marine biologist, and *vice versa*. Moreover, different groups of animals or different types of brackish-water have traditionally been the concern of people from different disciplinary backgrounds: the crustaceans have been studied mainly by marine biologists, for example, but the insects by land-based workers; estuaries have generally been approached from the sea, but lagoons appear to have been approached largely by accident. The end result of this is that although there are numerous guides to the faunas of fresh and marine waters, respectively, there is no single work which will permit the identification of animals from brackish waters. Anyone foolish enough specifically to be interested in this type of habitat has had to possess a small library of books and specialist papers otherwise devoted to elements of the fresh water, marine and even terrestrial faunas. Hence the production of this book.

And so to the second motivating force. Not all that many years ago, if a naturalist saw a bird that he or she could not immediately name it would have been entirely acceptable for him or her to shoot the bird in order to identify it. If that were done in northwest Europe today, however, there would be an outcry and the action could even lead to prosecution. The ethos of today is: 'better that the bird should live unidentified than for it to be killed simply in order to put a name on it'. Yet, if the unknown animal is a crustacean or an insect or a mollusc, then it seems that nothing has changed since

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the days when the essential possession of a naturalist was the means of killing. 'Kill first and identify afterwards' seems the creed of most invertebrate field workers. I for one cannot grasp the logic whereby a bird's life must be safeguarded whereas a prawn's can be sacrificed, and I believe and hope that within a few years concern for nature will extend beyond the land vertebrates and abstractions such as rain forests to the lives of individual invertebrates. Accordingly, the keys in this book have been designed for use without harm on living animals that can then be returned to their habitats after identification. Indeed, in some cases the characters concerned can *only* be seen whilst the animal is alive. I have therefore attempted to produce a guide that is equivalent to those widely available for amphibians, reptiles, birds and mammals, and I trust that this book will thereby not only facilitate study of what is still a neglected but widespread habitat type in Europe (as elsewhere), but that it will do so without necessitating the destruction of part of that which is being investigated.

Finally, I wish that I could claim that my coverage of the brackish-water macrofauna is complete, but I cannot. Many of the smaller brackish waters and their faunas remain uninvestigated, and taxonomic problems and difficulties of identification render some records in the literature open to question and information on several species patchy to say the least. Our knowledge of the fauna is therefore still incomplete; my coverage of estuarine and lagoonal species, however, is as full as I have been able to make it. A start has to be made somewhere, and doubtless future works will be able to improve considerably on this one. I should also point out that lagoonal habitats may appear to have been granted a disproportionate amount of attention in some sections of the introductory chapters. This is deliberate. Within the general category of brackish waters, the estuarine habitat is the best known and most intensively researched. Nevertheless, semi-isolated, non-tidal, pond-like brackish waters are abundant in north-western Europe and are more easily accessible than the majority of estuaries, even if very few words have been devoted to them in the existing popular and technical literature. I have endeavoured to redress the balance somewhat and to draw the attention of a wider audience to what we do know of their ecology and evolution.

I am most grateful to Drs Paul Cornelius, Laurie Friday and Peter Hayward for valuable advice and assistance in respect of various, to me obscure, hydroids, beetles and bryozoans, respectively; to Dr Colin Little for adding species to my original draft list; to Annaïg Darmorie and Marc Weller for translating various troublesome passages from the European literature into English; and to Dr Sally Corbet for suggestions for rendering the introductory sections into equally intelligible English. I would also like to record my indebtedness to Adolf Remane, Wilhelm Schäfer and Bent Muus who, via their writings, have always nurtured my interest, and provided copious insight, into the lives of the animals treated in the following pages.

*RSKB**May 1993*



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## Sources of illustrations

With a handful of exceptions, I have based the illustrations in this book on those available in the literature, and I list the sources that I used in (re)drawing my figures below. A few have been reproduced, with permission, directly from previously published sources. The exceptions were drawn from life or from my own photographs.

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