

addition to plotting occurrence the British maps show relative abundance and, where known, an indication of whether the population is increasing (29 species) or decreasing (8 species). Although collecting is featured, the authors are careful to make sure the reader is warned of the conservation problems. All in all a book which should find a place in the pocket of the keen field naturalist – if he's still got space.

JOHN A. BURTON

The Atlantic Salmon: Its Future, edited by **A.E.J. Went**. Fishing News Books, £19.50.

British Freshwater Fishes – the Story of Their Evolution. By **Len Cacutt**. Croom Helm, £6.95.

The Atlantic salmon is undoubtedly a threatened species. Within the present century its range has shrunk and its numbers have decreased, as is amply borne out by the decline in global catches despite increased fishing effort by some countries. Single countries have attempted to protect their stocks, some like Iceland successfully, others like France and the United Kingdom less effectively, yet overall there is still no efficient means of protecting this one-time valuable fishery resource. Indeed, if anything, progress has been negative, for the one international body which could exercise a limited control of fisheries in the North Atlantic (ICNAF) has been disbanded in favour of a shaky North American fishery policy and the farcical attempts at fisheries management by EEC countries.

The proceedings of the second International Atlantic Salmon Symposium, held in 1978 in Edinburgh, contains a series of eighteen papers by various authorities under sub-headings – Present Situation, Salmon Exploitation, Ecology, Cultivation, and The Future, and as a result it loses the overall cohesive approach to the problems besetting the salmon which a book with fewer authors might attain. The book gives a limited overview of the status of salmon today, with discussions on past and present fishery management of salmon. By far the most valuable part of it are some of the articles on the ecology of the fish with reference to its future conservation.

Len Cacutt writes as an angler with anglers' interests in mind. Despite the promise of the subtitle, there is very little of direct relevance to the evolution of fishes or the origins of the freshwater fishes of these islands. There is, however, a wealth of detail concerning the capture of 'record' or near-record fishes which will interest anglers, and a certain amount on the biology of the species. This is an eminently readable angler's view of our freshwater fishes, written in a racy style and with abundant good humour, but purchasers should be warned that it contains a number of errors.

ALWYNE WHEELER

The Evolutionary Ecology of Animal Migration, by **R.R. Baker**, Hodder, £35.

This is not the sort of book one reads; it is the sort one has. Nicely illustrated, well indexed, impressively broad in scope, and generally readable despite the author's conscientious attempt to be scientifically precise, it is a valuable ecological reference text. This results in two recurrent stylistic flaws: a somewhat ponderous repetitiveness, largely of the definitions from the lexicon the author creates – 'habitat suitability', 'mean expectation of migration' – and the formulation of hyper-rigorous statements, such as 'no matter how long an animal remains in each volume of space occupied by its body'

Part 1 defines migration so generally that constructing a model for it is rather like devising one for digestion or skin. The thesis is that migration is advantageous and will probably occur when things are better elsewhere, but the general form of the model

does not help us to understand how migration is triggered nor how the animal's distribution *vis à vis* its vital habitat requirements changes as a result.

The evaluation of the model (Part 3) is a complex and not very convincing business, especially given the fact that 'in no case . . . is it possible at present to evaluate the model in a totally quantitative and objective manner' (page 278). In such circumstances, a model is not much better than an opinion. Nonetheless, a number of species are examined and attempts are made to construct 'adaptive packages'.

In his sweep of examples of different types of movements and 'lifetime tracks', the author produces neat and informative little thumb-nail ecological sketches of a host of species, from locusts to whales. In some species with which I am familiar, large African mammals for instance, the references are not the latest available; one hopes that other specialists will not find the same deficiency. Despite this, the taxonomic breadth is most impressive and does not appear to suffer in general from the superficiality which usually characterises such surveys. On the contrary, each species is tackled with detailed enthusiasm, and one learns a lot, despite the model.

HARVEY CROZE

Effects of Acid Precipitation on Terrestrial Ecosystems, edited by T.C. Hutchinson and M. Haras. NATO Conference Series: 1, Ecology; Volume 4. Plenum Press, New York, \$49.50.

Decomposition in Terrestrial Ecosystems, Studies in Ecology, Volume 5, by M.J. Swift, O.W. Heal and J.M. Anderson. Blackwell, £22.50.

The first book is the latest in the series of NATO Conference proceeding on ecological topics, and follows on logically from the previous volume – *The Breakdown and Restoration of Ecosystems*; see *Oryx*, April 1980, p299. It contains 38 pages in 7 sections, and concludes with 10 useful summaries of various groups of contributions, written by a participant.

In the light of current concern about the effects of acid precipitation, largely caused by industrial sulphur dioxide emissions, and of the 'export' of this acidity by high level winds to other countries – notably Canada and Sweden – this compilation is particularly valuable. The papers start from underlying concepts of precipitation in vegetation, and then cover the effects of acidity on vegetation, soil chemistry and soil biology. The final group on 'Identification of Sensitive Sites and Soils' demonstrates that, as too often in ecology, description is one thing, but prediction quite another.

The processes of decomposition are unromantic and rarely given the prominence they deserve in ecological literature. Yet in most ecosystems, the majority of the energy fixed by green plants passes not to the conspicuous herbivores and carnivores in the grazing food chain, but the less obvious bacteria, fungi and soil animals, out of sight and often out of mind in the soil. Only in environments where this hidden community is unable to function (usually waterlogged or acid soil) does the decomposer food chain fail, and the result is peat.

The second book is therefore timely. It is also well written and has a novel approach, based on consideration of decomposition processes in six distinct ecosystems – tundra, taiga, temperate deciduous forest and grassland, savanna, and tropical forest. This is the scheme of the opening and closing chapters, the latter with a neat diagrammatic summary of the processes in the six systems. In between are chapters concerned with the decomposer organisms (treated with a refreshingly functional approach), the nature of the materials decomposed, the biochemical processes involved, and the influence of the environment.

Altogether this satisfying and very welcome book can be recommended to anyone who wants to know what really makes terrestrial ecosystems tick.

A. H. FITTER