

in the text, although these are all included in the comprehensive index. Thus, the beautiful little Crested Hawk is not under the heading of Pacific Baza, the Spine-tailed Swift not under White-throated Needletail, the Ground Thrush not under White's Thrush, and so on. By the RAOU decree, the Australian Little Grebe became the Australasian, not by reason of the breeding range extending to New Zealand. You might think so, but oh dear no. The modern concept of Australasia apparently excludes New Zealand but extends northward to New Guinea and Indonesia, which are within the breeding range of this species.

This booklet (225 x 179 mm) is fully recommended to all those members who have an interest in Australia's abounding birdlife, or who may be contemplating making contact with some of the 529 species in NSW. It is obtainable from Mr D. Larkins, 225 Kissing Point Road, Turramurra, NSW 2074, Australia.

A. Blackburn

*Migration: paths through time and space*, by R. Robin Baker. Hodder & Stoughton. 1982. 248 pp.; many drawings and photographs. \$23.50.

When Robin Baker's mammoth tome *The evolutionary ecology of animal migration* appeared in 1978, it was met with high praise and outright scorn. I found it too long and tedious to read. The text was stultifying; the price alarming. Clearly a shorter, pithy, more readable book was needed, one that took into account the new insights from contributors such as John Krebs, Nigel Davies, Richard Dawkins, and Geoffrey Parker.

This new offering by Robin Baker is just that. It contains 15 short chapters, a glossary of terms, and an index, all within a quarter the size of the previous book.

Baker's general thesis is bound to create much heat and light. "The main aim of the book is to provoke discussion and argument, not just about migration, but also about the concept of the organism on which the whole study of behaviour is based." He invites us to put out to pasture the ethological view of an animal as being little more than an automaton, wherein a specific stimulus goes in one end and a predictable response comes out the other. In this aging model, a little learning might be involved when the animal is very young (imprinting) or when faced with repeated trials and mistakes (conditioning). This ethological view of behaviour and migration in particular is discounted by Baker, largely because it is inflexible and biased towards a regimented genetic programming. It encases the animal within a useless coat of stereotypy.

Baker's premise is that animals are much smarter than we give them credit for. Most of them know where they are and where they are going. They learn. Many organisms have a cerebral sense of location as we do. Consequently, "If we have to attribute human thoughts, feelings, and emotions to other animals in order to under-

stand their behaviour, then so be it; we should be prepared to do so." The study of human navigation and experiments with humans can, according to Baker, create more insights into the migratory behaviour of animals than has been previously contemplated.

Baker's explanation of how animals find their way about from birth until death (their 'lifetime track') is most interesting. He rightly begins by dealing a death blow to the word 'dispersal.' An animal does not 'disperse' unless it explodes; animals do not 'disperse,' they explore. This is the crux of Baker's argument. To explore, animals build up a 'familiar area,' and while travelling they constantly rank and assess habitats which may be useful to them at a later time. Such investments for the future are stored in a spatial map within the animal's memory to be used and added to as and when necessary. 'Landmarks' within the spatial memory can be any specific indicator of location: a characteristic smell, sound, magnetic anomaly, river, mountain, city; or in marine birds, coastlines, islands, wave direction, colour and chemical signature of the sea. All these are useful to an animal on the move.

Familiar areas can grow to be very large. Those animals, for example, that can tune down to infra-sounds (0.1-10.00 Hz) have the capability to have a familiar area hundreds, perhaps thousands of kilometres across — even before they have moved from their home range. The implications of this possibility are quite breathtaking. Given such environmental cues, exploring becomes relatively easy and animals rarely become lost. Both humans and homing pigeons are equals when it comes to knowing where they are: they both have a sense of location. Indeed, as Baker discusses in some detail, very few animals lack this sense of location (some butterflies use a sense of direction instead).

Navigation is reviewed in terms of an animal's ability to explore, and the author demonstrates quite convincingly how closely the two are related.

Innate behaviour is another important key underpinning an animal's cues for learning. Programmed innate behaviour gives a mental image of what habitats should be like, and much early exploratory behaviour (migratory restlessness in birds) is preprogrammed. Eventually, as the young animal reaches adulthood, these innate yardsticks are replaced by the information discovered during exploration during the post-fledgling migrations: it is a more appealing premise backed up by several compelling examples.

This book is as disconcerting in its anthropomorphisms as it is for its absorbing reading. It is well written and invigorated with many examples pertaining to birds. Many more examples are to be found in the 1978 book, to which the reader is frequently referred.

This paperback book will be read by many daunted by the first work. It demands to be read by everyone interested in bird migration.

I found Baker's exploration model, and its important effects on genetic programming, much more coherent and sensible than the rusty ethological models for behaviour. Some of Baker's views are obviously winners, others less so. One thing is certain: Baker has ensured that the world of migration will never be the same again. Read this book and find out why.

P. C. Harper

*A preliminary inventory of wetlands of international importance for waterfowl in West Europe and North-West Africa*, by D. A. Scott. I.W.R.B. Special Publication No. 2, September 1980.

The International Waterfowl Research Bureau monitors waterfowl in the Western Palearctic, aiming to identify the wetlands of greatest importance. This large 128-page booklet aims to provide for governments and local authorities an "inventory of wetlands which should receive priority in conservation measures, particularly in relation to international agreements such as the Ramsar convention or the EEC directive on the conservation of wild birds." The areas mentioned in this booklet refer only to waterfowl and so is more limited in scope than the *Directory of wetlands of international importance in the Western Palearctic* by Erik Capp.

The booklet is divided into two major sections: the Selection Process and the 22-country Inventory.

The Selection Process covers definitions, criteria for site selection, species coverage, biogeographical population, species accounts, the count data. Under species accounts (86 species are covered) we read, for example, "*Porphyrio porphyrio* Scarce and local in west Mediterranean Basin . . . population 500-600 pairs."

The major section of the book contains the Inventory for 22 countries ranging from Denmark to Niger. Entries vary considerably. The United Kingdom has 114 sites mentioned, Austria only 4, and Mali just a preliminary comment. In total 544 sites are covered. Each site entry contains the following data: name of site, location, geographical co-ordinates, area in hectares, protection status, threats to wetland habitat, major habitat type, breeding waterfowl of international importance including average numbers, passage or wintering waterfowl with counts and other species occurring at the sites in significant numbers.

The book concludes with a comment on the effectiveness of the inventory, sources of information and acknowledgement, references, three tables and three appendices. Table 1 covers numerical criteria for selected waterfowl species, Table 2, number of sites of international importance for individual species, and Table 3 effectiveness of the inventory for certain breeding waterfowl in the EEC.

Although this book has no immediate relevance to New Zealand it could well serve as a model for something similar here and so is recommended as worthy of study from that point of view.

Don Hadden