

Reviews

Eagles, Hawks and Falcons of the World. By Leslie Brown and Dean Amadon. Hamlyn (for Country Life), Feltham, Middlesex, 1968. Two volumes in slip case: 945 pages including 165 bird plates (most in colour), one egg plate (in colour), 15 underwing plates, 94 maps and 33 other text-figures. £15.75.

As long ago as 1924-36 H. K. Swann published his *Monograph on the Birds of Prey* and then in 1964 M. L. Grossman and J. Hamlet followed with their *Birds of Prey of the World* (reviewed in *Brit. Birds*, 58: 193-195). Thus the present book is the third in line, but it breaks much new ground and largely complements the 1964 one: the main concept of that was the visual impact of its photographs, whereas Mr Brown and Dr Amadon have made their text the all-important part; they have also excluded the owls.

The first 150 pages of the first volume, forming part 1, are devoted to an Introduction and 18 chapters on Classification and distribution, Physical attributes and senses, Plumage and moult, The daily cycle, Flight, Migration, Hunting methods and speed, Food consumption and the rôle of birds of prey as predators, Territory, Display, Nests and nest-building, Eggs and incubation, Development of the young, Care of the young, The post-fledging period, Breeding success and productivity, Longevity, mortality and enemies, and Hawks and Man. These have had to be greatly condensed and, as a result, some seem a little inadequate. I was disappointed in the chapters dealing with territory, nests and migration (particularly the last, which has received much attention in recent years) and in the section on sexual dimorphism. Nevertheless, there is an astonishing amount of accurate and clearly presented information here and, taken as a whole, these chapters provide an unrivalled survey of basic knowledge about birds of prey.

Part 2 opens with chapters on Field identification, and Nomenclature and taxonomy, followed by a Specific List of the 287 species of diurnal birds of prey recognised by the authors. These comprise seven New World vultures, one osprey, 31 kites and honey buzzards, ten fish eagles, 15 Old World vultures, twelve snake eagles and hawks, 13 harrier hawks and harriers, 53 goshawks and sparrowhawks, 49 buzzards, four harpy eagles, 30 true eagles, one secretary bird, 16 caracaras and aberrant falcons, and 45 falconets and true falcons. I would have preferred to see *Aquila nipalensis*, *Circaetus beandouini* and *Falco peregrinoides* treated as distinct species from *A. rapax*, *C. gallicus* and *F. peregrinus*, but these are matters of opinion and, as one would expect with Dr Amadon involved, there is little to quarrel with in the general classification. Birds of prey come in all shapes and sizes, more

so than the species of any other order, ranging from the tiny falconets that weigh as little as 40 gm (under $1\frac{1}{2}$ ounces) to the huge California Condor with a weight of up to 14,070 gm (31 lb) and a wing span of up to $9\frac{1}{2}$ feet; the males also vary from slightly larger to far smaller than the females. Thus they present outstanding opportunities for studies of adaptive radiation and convergence, but this aspect receives scant discussion.

Most of the rest of volume 1 (240 pages) and the majority of volume 2 (412 pages) are taken up with the detailed treatments of the 287 species, the individual accounts varying from half a page to as many as ten in the cases of well-studied birds. After a few lines on the characters of the genus, they give sections on range, description (including subspecies and useful measurements and weights), field characters, voice, general habits, food, breeding habits, and important references. Apart from the last, which often consist of only one or two titles (or none at all), it is difficult to understand where some of the information is taken from. One can be sure that much comes from the personal knowledge of these two distinguished experts, which is refreshing in a reference work of this kind, but those who want to follow up previous publications will find it difficult to do so.

Each species is illustrated on at least one of the 165 plates and some on two or even three or four. Almost all are in colour and they are by eight different artists, Guy Coheleach, Don R. Eckelberry, Albert Earl Gilbert, J. C. Harrison, C. E. Talbot Kelly, Roger Tory Peterson, David Reid-Henry and Lloyd Sandford, whose names will be sufficient to vouch for the high standard of accuracy. Each is bled off all round and the one to eight birds on it are identified by keyed outlines on the facing page. This method, which involves the eye in travelling from plate to key to caption, is rather tedious, though it has the merit of keeping the plate uncluttered by lettering. The style of the plates varies greatly, not just between different artists, but in the matter of presentation: some are of field-guide simplicity, while others have detailed backgrounds with the birds shown in supposedly lifelike circumstances. While this adds variety, it does not make for ease of comparison. At the same time the reproduction is disappointing in that many plates have a rather flat and even fuzzy appearance (the specimen in the publicity leaflet was much better than the corresponding plate in the book).

The remaining parts are 15 pages of underwing drawings, 94 distribution maps, a supplementary bibliography of six pages, and an index in two parts. The underwing drawings (grouped by continents) are disappointing, chiefly in the shapes but to some extent also in the patterns: they will act as an aide-memoire to those familiar with birds of prey, but are of limited use as an introduction to flight identification. The maps, on the other hand, though rather roughly drawn to a

variety of projections, are useful: by different shadings and some cunning juxtapositioning of the various continents, they manage to show the ranges not only of all but 17 of the species but also of the subspecies.

The general tabling of contents and indexing are not good: the lists of chapters, illustrations, tables and underwing plates are surprisingly duplicated at the beginnings of both volumes, but the complete list of species (with plate and map numbers) appears only in the middle of volume 1, and the index to both volumes only at the end of the second. Species are indexed under the generic name with the English vernacular in brackets, and a cross-reference under the English name irritatingly indexed by the first word. The maps are indexed, but not the plates or the underwing patterns.

Most of these and my other criticisms come within the sphere or advice of the publishers. There are many misprints, which I understand were outside the control of the authors (and a list of corrections may be obtained from Dr Amadon at the American Museum of Natural History, New York). The printing is of a high standard, but in an unnecessarily large type; the paper used is of such thickness that the two volumes together in their case equal almost exactly the maximum weight of a Lammergeier. How many potential buyers would have preferred something less lavish, less expensive and more manageable with better plate reproduction and an improved system of contents and indexing? For the authors I have little but praise and this remarkable compilation of a very high standard is essential, even at £15.75, to anyone interested in birds of prey or concerned with zoo-geography or conservation on a global basis, as well as to all ornithological bibliophiles. I hope that this late review will atone by convincing those who have delayed buying it hitherto.

I. J. FERGUSON-LEES

Ecological Isolation in Birds. By David Lack. Blackwell, Oxford, 1971. xi + 404 pages; 58 text-figures. £4.25.

In a natural world governed largely by competition and survival of the fittest, how do so many similar species survive? The answer seems to be that they differ in ecology even though they are sometimes very alike in morphology and appearance. Each has its own niche, to which it is uniquely adapted; it enjoys 'ecological isolation'. Put in another way, no two species with identical requirements can live together. This is not to deny that food and other resources are shared to some extent, especially when in abundant supply.

All this is plausible, but to provide proof from the complex world of nature is not easy. The considerable body of evidence, both direct and circumstantial, which has accumulated is summarised in this book by Dr Lack. Much of it is the result of his own efforts: his first contribution to the subject, aptly called 'Habitat selection in birds', appeared

as long ago as 1933, and there are 16 later titles. His book *Darwin's Finches* (1947) is a classic study of feeding diversity in an otherwise homogeneous group of insular species; while the long-term study of tits carried out at Wytham Wood, Oxford, under his supervision provides the most important single source of quantitative data on the questions involved. The book contains a detailed analysis of these and other examples of species interaction. Further details, measurements and tables are given in a lengthy series of appendices.

Ecological isolation in birds is generally effected by differences in food, habitat or range. Of course, if two species are totally isolated by range, they do not need to differ in ecology. But the emphasis here is upon the numerous cases in which a species gives way to a closely allied one as we pass from region to region or from lower to higher altitudes.

In a book that summarises instances from many sources, there are sure to be a few debatable ones. Thus on page 133 we read: 'Three species of hawks in the genus *Accipiter* coexist in eastern North America . . . and in each of them the female is larger than the male, so that six forms of similar shape but different size hunt for prey in a similar way in the same area . . . Hence these three species form an excellent example of ecological differentiation through body-size and size of prey.' But H. Meng found that the medium-sized Cooper's Hawk *A. cooperii* does not tolerate the small Sharp-shinned Hawk *A. striatus* in its breeding and hunting range. I suspect the same would be true of Cooper's vis-à-vis the largest of the three, the Goshawk *A. gentilis*. It may be no coincidence that in recent years, as the Goshawk has become more common as a breeding species farther south in America, Cooper's Hawk has greatly decreased in that part of its range. In any event the two never overlapped to any great extent, and likewise the Sharp-shinned and Cooper's tend to occupy different climatic zones. Moreover, the larger size of female birds of prey is, I think, a result of sexual, not ecological, selection. There is also the question of where these three hawks evolved (Goshawk in Eurasia? Cooper's Hawk in South America?) and the possibly greater effect of competition with unrelated species (Goshawk with Great Horned Owl, for example). In other words, the situation as presented is grossly oversimplified, though this is the fault not of the author but of his sources.

The book is well produced and the drawings, by Robert Gillmor, are useful and attractive. There are relatively few misprints. To mention one or two, on page 133 read 'Sharp-shinned Hawk' rather than 'Broad-winged Hawk' (twice); on the same page 'Goshaek' offends the eye. On page 245, 'sign' should be 'size'; on page 263, I presume the first of the two species of terns mentioned has a longer, thinner (not thicker) bill than the other.

The evidence carefully marshalled in this volume seems to me to

establish beyond reasonable doubt the validity of the views presented. For the professional it will provide a lucid review of a subject of great importance which impinges upon many aspects of ecology. The amateur naturalist or non-specialist will find after reading it that his own field observations become more satisfying and relevant. DEAN AMADON