

his account of the life stories of the crowned eagles at Karen is memorably illuminating. Again, there is the repeated emphasis on how little, rather than how much, we know; for example, of 59 species, the nests of 14 have yet to be seen, and the biology of many others is little known.

In both books the conservation chapters consider the range of problems facing raptors, from habitat destruction in the tropics to deliberate persecution in Europe and North America. The futility of destroying raptors which can at most only have marginal effects on game bird or sheep populations is clearly demonstrated. With Leslie Brown I conclude that until fines become less than derisory the law will be held in derision.

Both books are packed with data and contain valuable appendices summarising systematically much of our knowledge. Both have useful bibliographies, though regrettably no references are cited in the texts. More important, there are no contents pages for text figures or photographs, which is especially irritating in *Eagles* because it contains some valuable diagrams which stand by themselves as data summaries. The photographs in *Birds of Prey* (many in colour) are often splendid; those in *Eagles* are sometimes poor and cramped. But such minor quibbles should not be permitted to deter the raptor enthusiast or general reader from buying either book.

COLIN TUBBS

The Web of Adaptation: bird studies in the American tropics, by David W. Snow. Collins, £4.50.

This exciting book is about the lives of fruit-eating birds – cotingas and manakins – in the Guianas, Panama, Brazil and Trinidad. The author and his wife, Barbara, have unravelled the biology of these secretive birds through painstaking observation in tropical forest over the last twenty years. For those familiar only with birds of the temperate regions, their findings will be a real eye-opener. Imagine an area of forest clearing no bigger than twenty square metres with seventy male black and white manakins performing fantastic displays in a communal lek, making snaps, whirrs and grunts with their wing feathers as they leap between twigs at tremendous speed; or two or more male blue-backed manakins performing a 'catherine wheel' dance, or blue manakin males sitting in a row, each flying up to the female to 'kiss' her in turn. If these seem far-fetched how about oilbirds which nest communally in dark caves, finding their way about by echolocation like bats?

But the most fascinating aspect of this book is the way all the intricate adaptations of these birds can be brought together and understood in relation to their fruit diet. The birds do the trees a service by disseminating seeds; the more conspicuous the fruit, the more the seeds are dispersed, and so the birds in effect ensure for themselves an easy food supply. The author suggests it is the ease with which food is obtained that has emancipated the male from all nest duties because the female can feed the young by herself; this has led to promiscuity, lek behaviour and all the elaborate colours and displays of the males. Although some of the communal displays are interpreted as cooperative affairs, one wonders whether they may not rather be forms of male competition or interference. Despite the apparent superabundance of food, clutch sizes are small; Snow suggests that this is due to the high risk of brood predation putting small, inconspicuous nests at a premium.

All this information, fascinating in itself, is also of vital importance for the birds' conservation. Expanding human populations, intent on short-term agricultural gain, are devastating the forests. In the final chapter the author lists no fewer than six species of cotingas threatened with extinction. It was always the old conventional wisdom in biology that 'complexity begets stability'. However it now seems that it is in fact the most complex ecosystems, like the tropical forests studied by the Snows, that are the least able to withstand man's relentless onslaught.

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