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The Evolution of Avian Breeding Systems. J. David Ligon. Oxford University Press, Oxford. 1999. Pp. 504. Price £55.00, hardback. ISBN 0 19 854913 X.

It was David Lack in the 1960s who provided the foundations for studies of the evolution of behaviour and ecology of birds. His book *Ecological Adaptations for Breeding in Birds* (1968, Methuen, London) was a landmark publication. Richard Dawkins later singled out David Lack as one of the first behavioural ecologists, in part because Lack recognized the essentially selfish way evolution operates, but also because he identified the major questions that needed to be answered.

Why, for example, should individuals of some species forego rearing offspring themselves but instead provide help to others of the same species? Why are most bird species socially monogamous while most mammals are polygynous? Why do some birds, like ruffs, manakins and birds of paradise copulate only at leks? The fact that Lack was able to write such a comprehensive summary of avian breeding systems when he did was a consequence of birds having always been popular subjects for researchers interested in behaviour — their sensory modalities are much the same as our own, and they are mostly diurnal making birds easy to observe compared with most other taxa. With the advent of behavioural ecology in the mid-1970s birds continued to serve as ideal study organisms for a new generation of biologists keen to test the hypotheses generated by the new paradigm. Ligon's book follows on from where Lack left off, summarizing a vast wealth of information that has accumulated in the interim. Ligon focuses on two main themes, sexual selection and cooperative breeding — two of the foundation stones of behavioural ecology. This has not been a light undertaking and it takes no less than seventeen chapters to synthesize the 900 or so studies cited in the References. The book starts with an introduction both to sexual selection and to the research strategies adopted by those who study it. Subsequent chapters range widely over the broad field of sexual selection, encompassing signals (morphological ornaments such as wattles, knobs, spurs and tails, as well as song) parasites, fluctuating asymmetry, phylogenetic factors, speciation, parental care, cooperative breeding, mating systems and finally, concludes with some ideas for new research initiatives. As I read through this volume I asked myself what Lack might have made of it. Lack was a great synthesizer, but I have a feeling that even he might have thought twice about undertaking such a monumental task, simply on the basis that there is now so much information available it would take extraordinary understanding and skill to pull it all together into a single readable and useful whole. Behavioural ecologists who study birds will be grateful to Ligon for providing them with a comprehensive overview and an extensive bibliography. However, to be truly successful, an overview of a topic like this requires more than simply stating hypotheses, listing facts and providing examples. To aid researchers and to guide students, a synthesis must do at least three other things. It must provide a clear structure which distinguishes unambiguously between theory and empirical observations. It must provide an indication of the excitement of a rapidly expanding area of research. And, most importantly, it must provide the intellectual glue to hold it all together. Despite having elements of each, this book misses the opportunity to revitalize a well-established field by highlighting and critically assessing the gaps that exist between theory and what birds actually do.

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