

A BEHAVIOURAL ECOLOGICAL CLASSIC REBORN

A review of:

Davies, N.B., Krebs, J.R., & West, S.A. (2012.) *An Introduction to Behavioural Ecology: Fourth Edition*. Oxford: Wiley-Blackwell.
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There are many books in the world and oddly some of the least inspiring are textbooks, the very books that are supposed to introduce a novice to a field, enthuse her and set her free on a subsequent journey with monographs and papers. More often than not textbooks turn into rather dry accounts of the core conceptual issues, some pertinent methodological considerations and deferential comments about leading figures, mostly dead, and seem to rely entirely on the apprentice to persevere and mine the nuggets. When student turns to lecturer, she often has a sinking feeling when assigned a new module to teach, realizing that she will have to wade through many such books trying to find the least bad one to recommend, or she will have to write one herself, thus eating into her research time. After she has applied the appropriate optimality model, she more often than not chooses the latest edition of the text she herself used.

But, sometimes things are different. Over the last twelve months I have read a number of books and two have proved to be exhilarating and inspiring in equal, and abundant measure. The first was Hans Kruuk's biography of Niko Tinbergen (KRUUK, 2003). This was a vibrant telling of an extraordinary life, of an excellent and messy scientific adventure starting in his boyhood dunes and working toward methodological innovation, disciplinary framing and, of course, a prize. I read it just before I took my own students on an annual field trip to Lundy and it reawakened that novice zeal in me at just the right time. The second is the subject of this review, the fourth edition of *An Introduction to Behavioural Ecology* by Davies, Krebs and now West. The book opens with a section on *Watching and Wondering*, capturing the excitement of natural history, that same wonderment that Kruuk describes so well, and then guides the reader through a series of fascinating questions and findings, experiments and field studies.

The first edition of this text was produced in 1981, as a student I used the second and third editions, and as a lecturer I introduced my students through the third. The editions I am familiar with were immediately inspiring, in no way conforming

to the turgid stereotype that I opened with, and this fourth has had a revivifying effect. A copy is already in my library for my Lundy students.

The effect is in part a consequence of time. There has been an almost twenty-year gap in publication dates between this and the last edition, and in that period there has been a lot of work and much theoretical development. To have it collated is wonderful. Capturing this in a single text, whilst not forgetting the historical legacy of classic work, such as that of Tinbergen, must have been a Herculean task of writing and editing. And it is the quality of this writing that is also responsible; it is clear, well organized and carefully crafted to introduce increasing technicality. The flow and build-up of ideas throughout each chapter does not skip a beat, does not rely on hidden assumptions and inferences, and is consequently very easy to read. But more than this, the core ideas are supported by illustrative, often key studies, and the use of boxes is smartly done, not interfering with the main narrative, but most definitely augmenting and clarifying it. All too often boxes are a device for off-loading technical summaries – rather like supplementary materials for some journals – and can leave the student perplexed as little effort has been made to connect the content to the chapter. This is most definitely not the case in Davies et al. There also is a useful, and thankfully minimally rendered, companion website that gives access to images, graphs and tables from each of the chapters. This is clearly good for students wishing to put together presentations for assessments, and extremely useful for lecturers, new and old.

Many of the chapter headings are the same as those in the third edition, or superficially similar, while others have clearly been split and expanded in their coverage to reflect changes in the discipline. However, each chapter has been thoroughly reworked even where the headings remain the same. The one chapter that has been dropped is that on *Fighting and Assessment*, yet its lessons on Hawk-Dove dynamics etc. are found elsewhere in the new edition. The concluding chapter, as in the third edition, returns to basics and questions some of the fundamental theoretical ideas that have been at work throughout the book as a way of asserting the utility of gene- and individual-level thinking in the discipline. New to this edition is the discussion of the ‘new’ group selection position on cooperation, which is carefully laid out and its rather cumbersome structure revealed. This is done fairly, pointing out that there is some predictive capacity in these new models, but this is hard-won relative to individual-level models. During this discussion the authors make clear that a focus upon the level at which selection occurs is not a generalizable issue, but specific to the complexity of the system being modelled. However, the question, ‘at which level does adaptation occur?’ leads to the general response, ‘at the level of the individual,’ for this is where fitness will be maximized. And so the student focus is rightly fixed on adaptation and inclusive fitness, a focus that continues to yield much fruit: a point that is finally brought home with a list of new areas of growth in behavioural ecology.

Toward the end of their preface the authors state their hope that readers will go out and fill in the gaps in the book, and find new problems to solve. I should say that this is a certainty and future generations will owe this book a considerable debt.