



*Journal of Fish Biology* (2011) **79**, 310–311

doi:10.1111/j.1095-8649.2011.03026.x, available online at wileyonlinelibrary.com

## BOOK REVIEW

**TINBERGEN'S LEGACY IN BEHAVIOUR: 60 YEARS OF LANDMARK STICKLEBACK PAPERS.** Edited by F. A. von Hippel. 488 pp. Published by Koninklijke Brill NV, Leiden, The Netherlands, 2010. Price €99.00. ISBN: 978-90-04-17029-2.

Niko Tinbergen is well known today as one of the founders of ethological research. When talking about his pioneering work, people often think first about herring gulls. Some of his early papers, however, were not on birds at all, but rather on the three-spined stickleback (*Gasterosteus aculeatus*). Indeed, sticklebacks are mentioned on c. 20% of the pages of Tinbergen's classic book '*The Study of Instinct*' [Tinbergen, N. (1951). *The Study of Instinct*. Oxford: Oxford University Press]. Today, sticklebacks are among the most used vertebrate model organisms. Studies using this animal not only cover every aspect of behavioural and evolutionary ecology but can also be found in more applied fields such as endocrinology and ecotoxicology. One reason for this prevalence, besides the fact that they are easy to obtain and to keep in the laboratory, is the existence of a huge amount of background literature. Indeed, work on sticklebacks dates back to the 1920s and early 1930s when their courtship and brood-caring behaviours were first described in detail [Wunder, W. (1930). Experimentelle Untersuchungen am Dreistachligen Stichling (*Gasterosteus aculeatus* L.) während der Laichzeit. *Zoomorphology* **16**, 453–498]. In this book, the editor reviews a collection of stickleback papers published over 60 years in the journal *Behaviour*, which was founded by Tinbergen himself back in 1948. The collection illustrates the rapid development of this field from ethology or Tierpsychologie towards up-to-date behavioural ecology and its manifold sub-areas.

The book is divided into six parts, starting with a general chapter on sticklebacks as a model system, followed by chapters on the reproductive cycle; homosexuality, cannibalism and sexual strategies; predators and parasites; and physiology and behaviour. A final chapter on behavioural genetics, phylogenetics and speciation builds a bridge towards modern research on stickleback genetics and genomics. Each of the chapters is introduced with a short overview written by the editor, followed by a selection of stickleback papers published between 1948 and 2008. The book is completed by a bibliography of papers on sticklebacks published in *Behaviour* from its foundation to 2008. In addition, and this makes the book a really good read, a number of authors provided short retrospective comments on their articles. Bob Wootton for example describes how the idea of working on wild stickleback populations was born during camping holidays on Vancouver Island, Canada, while Desmond Morris reflects on how attending a lecture by Tinbergen totally converted him to ethology. Further retrospectives are provided by Harman Peeke, Theo Bakker, Boyd Kynard, Iain Barber, Tom Reimchen and Michael Bell.

I really enjoyed reading this book. Of course, as it is a collection of papers from a rather broad field, few people will read it from the first to the last page without jumping between chapters. Rather, it is a book which has been on my desk since I bought it and every now and then I start reading it again, finding new interesting stuff from 60 years of stickleback research. This said I must also identify some weaknesses. The layout of the book is sometimes a bit sloppy and the papers are just copies of the original articles without further editing. Furthermore, several of the rather long articles are shortened simply by omitting some pages, which leads to abrupt breaks, sometimes in the middle of a sentence. These shortcomings, however, are counterbalanced by a nice cover artwork, as well as several great original figures and pictures within the articles. From a content-related point of view, I would have preferred to see more articles on shoaling behaviour. Any collection of papers, however, necessarily reflects a subjective choice and the range of topics covered is still enormous. Of course at a first glance this book appears to be most interesting for people working on sticklebacks and other fish model systems to whom I highly recommend it. I am, however, sure that readers with a more general interest in the course of behavioural research during the last 60 years will also not regret obtaining this nice anthology.

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