Clark, C.W., Mangel, M.: **Dynamic State Variable Models in Ecology: Methods and Applications.** - Oxford University Press - New York - Oxford 2000. 289 pp. ISBN 0-19-512266-6 or 0-19-512267-4 (paperback). GBP 45.00 (hard bound), 22.50 (paperback).

This book appeared as a recent contribution of the Oxford Series in Ecology and Evolution. It is an expansion of the previous book by the same authors (M. Mangel and C.W. Clark) entitled "Dynamic Modeling in Behavioral Ecology" that appeared in 1988. The term "dynamic programming variable models" was used by the authors as a more precise expression for the previous "dynamic programming models". According to the authors "This book shows a way of conceptualising constrains and trade-offs in biology". The description should allow the physiological behaviour of organisms to be linked to the effects of the environment. The modelled phenomena may be well deduced from the content of the book. Chapter 1, "The Basics" is devoted to a description of how to formulate algorithms including their computer implementation with the preferential use of the language True Basic. Examples of the source code and their explanation are also included. In the Examples of projects, the reader finds suggested topics, *e.g.*, Allocation decisions of plants or Parasitic plants. Chapter 2 describes "Some Details of Technique", *e.g.*, linear interpolation, sequential coupling, forward iteration, Monte Carlo simulation, *etc.* Finally, Chapter 3 entitled "Using the Model" finishes the general methodical part of the book. The next six chapters are devoted to the application of individual state variable models identified by chapter title: "Oviposition Behavior of Insect Parasitoids" (Chapter 4), "Winter Survival Strategies" (Chapter 5), "Avian Migration" (Chapter 6), "Human Behavioral Ecology" (Chapter 7), "Conservation Biology" (Chapter 8), and "Agroecology" (Chapter 9): this latter might be of special interest to the readers of Photosynthetica as it deals also with host-parasitoid interactions and weed control. Chapter 10 extends modelling to the level of population phenomena ("Population-Level Models"). Chapter 11 introduces uncertainty ("Stochasticity, Uncertainty, and Information as a State Variable"). The last chapter describes "Measures of Fitness".

In the Appendix, computer programs dealt with in the book are listed. They are available on the Oxford University Press Web site, written either in the language True Basic or C^{++}. Subsequently, a very extended list of references and a rather modest Index close this publication.

The authors claim that only minimal mathematical knowledge is needed to understand the book. Nevertheless, I would suggest that not only an ability to write the computer programs but also some experience in mathematical formalism would be of considerable advantage. The publication is supposed to be "self-teaching introduction to the technique and application of dynamic state variable models". I agree that this could be achieved by readers willing to invest time, much self-concentration and energy into this way of thinking, and thus enable them to write appropriate computer programs and test hypotheses with observations or experiments. This book cannot be comfortably read. It has to be studied with much attention. But it would help the reader to quantitatively describe and gain new insight into many biological phenomena. In experimental disciplines, such quantitative mathematical understanding cannot be very often replaced by simple result description, and so brings about considerable scientific progress.

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