

Book review: Basic and Applied Ecology 4, pp. 281 (2003).

Gibson DJ: Methods in comparative plant population ecology. Oxford University Press, Oxford, 2002, 344 pages, 28 tables, 73 figures, £ 26.99, ISBN 0-19-850562-0

In recent years a number of useful books on methods in plant ecology have been published, e.g. Hendry & Grime (Methods in comparative plant ecology, 1993), Ebert (Plant and animal populations: methods in demography, 1999), Krebs (Ecological methodology, 1999), Ford (Scientific method for ecological research, 2000). However, most of them deal with specialised aspects and a more general book aimed at intermediate students has been missing. The new book by Gibson will fill this gap. The book falls into three parts: it starts describing *What is plant population ecology*, followed by two major sections on *Planning a study* and *Doing the study*. Within the “planning section” emphasis is on developing hypotheses and research questions, pilot studies, experimental design and a basic introduction into statistics. The “doing section” introduces all relevant experimental treatments, traits of individuals and populations which may be measured, and abiotic and biotic measurements of the plant’s environment. The final chapter covers life table analyses and the investigation of spatial patterns in plant populations, including an introduction in modelling plant population dynamics.

As some other ecological textbooks this publication starts with a series of instructive case studies taken from classical publications which help to introduce the process of scientific research. These examples are repeatedly used in the following chapters. The total length of the book is adequate for getting a first impression of methods in plant ecology; it is also well structured and highly readable. The chapters start with some quotations, followed by a summary of the content and a preamble; most chapters close with some follow-up exercises. I particularly liked the frequent cross-references between chapters. However, it should also be possible to read only selected parts of the book, because at least some necessary details will be repeated. Those interested in a particular problem should be able to find quickly the relevant pages, although the subject index is relatively short. In addition, all plant and animal species are listed in separate indices. The book covers most issues which might be relevant for beginners in scientific research – from the dangers of pseudoreplication to phylogenetic contrasts and molecular markers (e.g. QTLs). The book even includes practical details, like the choice of adequate study sites or tagging plant individuals. Only few details seem to be missing, but coverage of some methods is rather superficial, for example experiments on seed predation or pollination. A strong feature of the book is the extensive list of about 800 references which are fairly representative of current ecological literature; in some cases even references to relevant Internet pages are included. Another useful feature is a separate reference list of standard methodological textbooks. From this body of literature numerous examples are used in tables and figures to illustrate all major issues of the main text.

One may regret that the author offers little new and original advice on ecological methods and in most cases follows the judgement of standard textbooks. However, one exception is the discussion on using physiological measurements in population ecology. Some further critical comments may relate to the poor quality of the black-and-white photographs and some of the line drawings which often not fully allow recognizing the relevant details. The editing of the book is generally well done (with few typos), although the structure of some of the longer sections could be more obvious, for example by printing all new key words in bold when first mentioned.

Clearly, this book should be in all scientific libraries with a serious interest in plant ecology, and it is highly recommended to intermediated and advanced students as a preparation for their first research projects. The book has also some interest for established researchers, who might find it inspiring for developing courses on methods in plant (population) ecology.

However, it is no substitute for reading those books which treat in depth the various problems and questions which may arise during all research projects.

Johannes Kollmann (jok@kvl.dk)