

BOOK REVIEW

LEPŠ J. & ŠMILAUER P.: *MULTIVARIATE ANALYSIS OF ECOLOGICAL DATA USING CANOCO*. Cambridge University Press, Cambridge, UK, 2003, 269 pp. ISBN 0-521-81409-X (hardback), ISBN 0-521-89108-6 (paperback), price: paperback GBP 27.95, hardback GBP 75.00

Multivariate analysis of ecological data can be performed in several ways and there is often controversy between proponents of particular methods. The authors of this book do not advocate ordination over other methods (classification, non-metric multidimensional scaling), or CANOCO over other software, they simply prefer for practical reasons CANOCO assisted ordination for handling large and complicated (multidimensional) data sets.

Besides the fact that the authors (the senior author is a professor of ecology, teaches biostatistics, is a botanist and also works in the Institute of Entomology, CAS, and the other author is a lecturer in statistics and a co-author of numerous ecological papers) are experienced in using ordination methods in their own ecological research, they are excellent teachers and they pass on their knowledge to students at the University of South Bohemia. In addition they run a special one-week international course on multivariate analysis in ecology for foreign students and researchers every year.

The book explains the theory and concepts of algorithms, serves as a guide for particular methods and provides worked

examples of the analysis of data on community composition and environmental properties (seven case studies). Thus, their book shows one how to: manipulate data (importing, transformation), set up an experiment (useful or critical to read before starting an experiment or field observation), decide on a particular ordination method (e.g. RDA, CCA), run Monte Carlo permutation tests, work with constraints and stepwise selection of variables.

Briefly described are similarity measures, classification methods (e.g. TWINSpan) and regression methods (e.g. GLM). Some parts deal with the visualisation of results – ordination diagrams. The drawing of graphs is not done directly by the CANOCO software (version 4.5. is used) but by a separate program: CanoDraw for Windows, created by Petr Šmilauer. Sample datasets, CANOCO files and results are freely downloadable from the book web site: <http://regent.bf.jcu.cz/maed/>

None of the case studies deal with insects, however, there are many entomologists, including myself, who use the ordination analyses computed by CANOCO. Because of the growing popularity among biologists of ordination methods a teaching text was needed as a source of explanatory information and guidance, which we now have in this excellent book.

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