Bookreview

R. L. BURGESS and D. M. SHARPE (eds.)

FOREST ISLAND DYNAMICS IN MAN-DOMINATED LANDSCAPES

Ecological Studies 41. — Springer Verlag, New York, Heidelberg, Berlin 1981, 310 pp., Price US \$ 34.00.

The reviewed book is the first attempt to present under a single title some research on forest islands in a man-fragmented landscape. It is a set of 13 loosely connected studies, put into a common framework by an introduction and a conclusion written by the editors. Altogether 25 researchers collaborated on this book. With the exception of the introduction and the conclusion, contributions fall into two distinct groups: empirical works, describing observed trends and relations (sometimes accompanied by some form of prediction, but with little explanatory power), and mainly theoretical works dealing with ecological modeling.

Empirical papers deal exclusively with data from the U.S., especially eastern Wisconsin, Maryland, and Minnesota. A group of Wisconsin studies is concerned with tree vegetation (LEVENSON), understory (HOEHNE), and mammals (MATTHIAE and STEARNS). The first two analyze the distribution of species growing only in forests, mostly by adopting the approach of MACARTHUR and WILSON's model of insular biotas; the third attempts to reveal the pattern of the whole mammal fauna in the anthropogenic landscape. Unfortunately, no synthesis of the results was undertaken, partly due to the rather different approaches adopted by these studies. A contribution on the forest flora in Minnesota (SCANLAN) and the extensive and thorough paper on Maryland avifauna (WHITCOMB and coll.) are similar in approach.

Each of the studies mentioned adopts one of two quite different points of view; either it tries to determine the influences responsible for the total island species richness, mainly by means of regression analysis, or it describes the behavior of individual species, without attempting a biogeographic or ecological generalization. The gap between these two approaches is filled nowhere in the book. Only the paper on the Maryland avifauna is closer to an ecological solution, but the authors could rely on the vast amount of data on the community ecology of birds, unavailable in such compact form for any other taxonomic group.

The contribution by RANNEY and coll. analyzes (by means of mathematical modeling) the dynamics of the forest edge. The data from LEVENSON's study provided an empirical validation of the model results. The remaining contributions deal with pure mathematical modeling of some aspects of forest island dynamics. (MAY: neotropical migration in birds, JOHNSON and coll.: modeling seed dispersal, RUDIS and EK: optimization of forest island patterns). Although they build valuable and sophisticated models, with the exception of the paper by RANNEY and coll. no model results were empirically verified nor used in landscape management. Moreover, many assumptions of these models were by no means confirmed by the preceding studies.

Obviously, it was extremely difficult for the editors to draw any conclusion from such a heterogeneous set of papers. They are good analytical studies, but leave little space for a synthesis. The subject of the book, however, is too wide, spanning from the biology of individual species to landscape ecology, and much more information is needed to outline even a preliminary conclusion. The extraordinary complexity of the subject became clearer in this book; moreover, many methods were usefully employed and tested.

TOMÁŠ HERBEN