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BOOK REVIEW

GRIME, J. P.: *PLANT STRATEGIES AND VEGETATION PROCESSES*. — John Wiley & Sons, Ltd., Chichester—New York—Brisbane—Toronto, 1979. 222 pp., £ 11.50.

The understanding of how vegetation functions and varies in composition from place to place and in the course of time requires to define the processes which control the structure and dynamics of vegetation. The ways how to reach this may be different. The author of this monograph chose the approach leading to the identification of the major characteristics of the life-history and physiological activity of plants which determine their adaptive specialization, fitness and persistence in particular habitats. His approach is rooted in the conception of adaptive "strategies" which have evolved in single plant species and plant types. In the attempt to define the adaptation strategies, the author examined the strategies adopted during two different parts of the plant life-history: the established (mature) phase and the regenerative (immature) phase. This distinction laid foundations to the arrangement of the monograph. Thus, the first two sections of this book are concerned with strategies in the established phase including the primary and secondary strategies. This phase is characterized by a variety of interrelated functions including the capture of resources, the maintenance, replacement, the enlargement of roots and shoots, the survival of stress and damage, and the production of seeds (competitive abilities, stress tolerance in particular habitats, vegetation disturbance, specificity of life-cycle in annual, biennial and perennial herbs, woody plants, *etc.*). Strategies in the regenerative phase which consists of a series of stages (such as *e.g.* the seed release, dispersal, dormancy, germination and seedling establishment) each of which varies in duration and in mechanism according to the species or population are analysed in the third chapter. The following three sections explore the significance of plant strategies in relation to the processes which control the structure, dynamics and species composition of vegetation (dominance effects, successions, co-existence). The conception of adaptive strategies allowed the author 1) to explain variations in the composition of vegetation by reference to associated changes of edaphic and climatic factors, 2) to interpret many detailed observations on peculiarities in the establishment, longevity and reproduction of plants at specific sites of their habitat and 3) to recognize the main "avenues" of adaptive specialization as they characterize plant species and populations of contrasted ecology. In the conclusion of the monograph, the contribution of epiphytes to species-rich vegetation, the control of species density by vegetation management, the problem of the maintenance of monocultures in agricultural systems and the management of vegetation subject to trampling are estimated.

The text is well arranged and supplied with numerous original photos, figures, diagrams and tables. The book is complemented with the subject index, an index of plants and animals and with ample references covering data from various scientific disciplines. The specialists working in diverse fields of botany, ecology, agriculture, geobotany, biogeography, *etc.* will find here sections relevant to their particular area of study.

DANUŠE HODÁŇOVÁ (*Praha*)