Bookreview

M. FENNER

SEED ECOLOGY

Outline studies in ecology. Chapman and Hall, London, New York 1985, 151 pp., 59 Figs., 18 Tabs., 7.95 £.

FENNER's book is one of the small but very comprehensive paperbacks of the "Outline studies in ecology" series which provides a lot of information in an important branch of population ecology. It illustrates the explosive development of population ecology and autecology in the last decade. The author, a specialist in the ecology of seeds, thus successfully enlarges a set of excellent books written by English population ecologists (HARPER, GRIME, SILVERTOWN, etc.).

The text of 131 pages is subdivided into eight chapters; the first and the last are rather general, providing a broader ecological frame for the whole book. Chapter 1 deals with reproductive strategies in plants; relations between seeds and vegetative reproduction, the amount of nutrients devoted to seed reproduction by different plants, general questions of seed size and seed number and other aspects are discussed in relation to background ecological conditions. Chapters 2–7 are devoted roughly to those particular phases of plant life-cycles in which seeds play a decisive role. These chapters are: Predispersal Hazard (dealing with the period from ovule formation to availability of seeds to be dispersed), Dispersal, Soil Seed Bank, Dormancy, Germination, and Seedling Establishment. The topic of Chapter 2 seems to be less known to field ecologists because the role of predispersal hazards has been underestimated in most studies of population ecology. The author considers four main causes of mortality of ovules and seeds during the predispersal phase: (1) pollination failure, (2) resource deficiency, (3) predation, and (4) developmental failure due to genetic defects. The contents of all the other chapters are highly interesting but I would like to point out at least some parts, namely those on long-distance dispersal of seeds, on seed longevity, and the whole of Chapter 7 (Seedling Establishment) because remarkably few studies have been made of the adaptation of seedlings to their environment, compared with those of seeds. The concluding Chapter 8 offers numerous implications for community-level studies. Seed ecology is largely discussed in relation to spatial-temporal heterogeneity of environment; the persistence of particular species in communities, resulting in the long-term maintenance of species diversity, is pointed out. The importance of such phenomena as gap size, gap diversity or timing of disturbances is evaluated from these points of view.

The book is concise and well equipped with illustrations and it reflects the present state of knowledge in the field. (Some intrinsic physiological mechanisms could have been mentioned more explicitly, especially in relation to seed dormancy and germination; the comprehensive "Seed Biology" by KOZŁOWSKI is not quoted; the suspected role of allelopathy and mycorrhiza in germination and seedling establishment is practically ignored). The ecological interpretations of the physiological and morphological features of seeds are cautious and realistic. This book may be recommended to all who are interested not only in plant ecology (especially population ecology) but also plant morphology, physiology or evolution biology, as it synthesizes information from all these fields. Beside this, the book can also be used in applied fields. It provides an excellent overview of seed ecology.

KAREL PRACH