

Seeds: The Ecology of Regeneration in Plant Communities

Edited by Michael Fenner, Department of Biology, University of Southampton, UK

This book provides a comprehensive overview of all aspects of seed ecology. This subject is of major concern to plant ecologists, as in higher plants, natural selection can only have new genetic combinations on which to act through regeneration by seeds (as opposed to vegetative or clonal means). The emphasis of the book is on elucidating the process of regeneration in the field, but laboratory studies have been included where appropriate. The chapters follow in roughly chronological sequence from seed production on the parent plant through the dispersal, predation, dormancy and seed banks to germination and the establishment of seedlings in the landscape. The book will be invaluable for senior students and research workers in seed science and plant ecology.

Contents

- Reproductive allocation and reproductive effort in plants *F A Bazzaz and D D Ackerly*
- Maternal effects on seeds during development *Y Gutterman*
- The ecology of seed dispersal *M F Willson*
- Animals as seed dispersers *E W Stiles*
- Fruits and frugivory *P Jordano*
- Seed predators and plant population dynamics *M J Crawley*
- Longevity, viability and dormancy *A J Murdoch and R H Ellis*
- The functional ecology of seed banks *K Thompson*
- Seed responses to light *T L Pons*
- The role of temperature in germination ecophysiology *R J Probert*
- Effect of chemical environment on seed germination *C M Karssen and H W M Hilhorst*
- The contribution of seedling regeneration to the structure and dynamics of plant communities and larger units of landscape *J P Grime and S H Hillier*

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The Grass Genera of the World

L. Watson, Research School of Biological Sciences, Australian National University and M J Dallwitz, CSIRO Division of Entomology, Canberra, Australia

Modern taxonomic treatments of the grass family (Poaceae, Gramineae) recognize about 10,000 species and as many as 785 genera. This book provides detailed descriptions of these genera, in alphabetical sequence, the descriptions having been generated by computer from a taxonomic data bank.

One of the authors has been engaged for some twenty years in compiling data and observations on grass genera, in order to investigate classificatory questions and to explore taxonomic applications of computer methods. The other has worked for a similar time on computer key-making, and has developed the DELTA system for comprehensive representation and manipulation of taxonomic descriptions. They have devised a grass generic character list to cover all aspects of variation in grasses. In this book this list comprises 496 characters, dealing with nomenclature, general morphology, leaf anatomy and physiology, biochemistry, haploid and 2cDNA values, fruit and embryo structure, seedling form, cytology, intergeneric hybrids, phytogeography and distribution, ecology, pathogens, classification and economic aspects.

The work is undoubtedly a definitive reference work, essential for all those with a serious research interest in grasses.

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An Introduction to the Grasses

(including bamboos and cereals)

*G P Chapman and W E Peat, Department of Biochemistry and Biological Sciences, Wye College,
University of London, UK*

The grass family is of prime agricultural importance and includes all cereal crops of the world, forage grasses which feed farm animals, sugarcane which is a major industrial raw material, and bamboos which have a multitude of uses. However, grasses are also of inherent interest to biologists, incorporating both superficial simplicity and evolutionary innovation. This book provides an introduction to the subject, covering structure, development, reproduction, breeding mechanisms, taxonomic utility, domestication, and grasses as weeds. It covers both the temperate and tropical zones, and is well illustrated with original drawings and photographs. The book is aimed at biology, agriculture and horticulture students seeking a concise overview of the subject.

- The grass family
- Vegetative development and diversity
- The grass inflorescence and its function
- Diversity in the grass spikelet
- Taxonomy
- Photosynthetic diversity
- Reproductive diversity
- Grasses in cultivation
- Grass as weedy colonists
- A critical glossary of the grasses
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