Roy, J., Aronson, J., Di Castri, F. (ed.): **Time Scales of Biological Responses to Water Constraints. The Case of Mediterranean Biota.** - SPB Academic Publishing, Amsterdam 1995. 243 pp. NLG 125.00.

There are widely separated regions in the world (the Mediterranean Basin, California, part of Mexico, Chile, South Africa and Southern and Southwestern Australia) that share a Mediterranean-type climate. Water constraint is the most characteristic limiting factor in Mediterranean-type ecosystems and water availability presents much variability at various time scales, from daily fluctuations, with mid-day stomatal closure, to the millennial one that characterized the emergence of Mediterranean conditions in various parts of the earth. The first section of this book deals with physiological responses of cells, organs or entire plants to water stress. Great attention is paid to affection of photosynthesis in conditions of rapidly and slowly developing water deficit. Stomatal and non-stomatal limitations to photosynthesis are evaluated. Different models of water transfer by plants from soil to atmosphere (considering storage of water in plants, heterogeneity of pathways, water and solute interactions, *etc.*) are compared. Further the responses of plants to water stress by reduction of leaf area, increased rooting depth and density and decreased transpiration rate by stomatal closure are simulated. The second section is devoted to the consequences of rainfall variability: impact of interannual and seasonal variability of rainfall or of unusually high or low rainfall on plant community composition and production. Also grazing and farming strategies are discussed. The main object of third section is evolution of plants and animals in response to summer drought. Adaptations to mediterranean-climate at the biochemical, physiological, whole organism and community levels are taken into account. The last section reviews the history of dryness in the five Mediterranean regions over the past few million years, evaluates antropogenic effects from very early times and predicts possible changes in the vegetation structure of Mediterranean regions in consequence of global climate change. Bringing together disciplines from physiology to paleoecology this book brings into focus the structure and function of natural ecosystems in response to the time scales of their major constraints. Therefore the readers of various professions will find here interesting data, new connections and stimuli for their research. The book is well arranged and produced and text based on literature as well as own work of authors is accompanied by many figures and tables.

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