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Pugnaire, F.I., Valladares, F. (ed.): **Functional Plant Ecology**. 2nd Edition. - CRC Press, Taylor and Francis Group, Boca Raton - London - New York 2007. 724 pp. ISBN 978-0-8493-7488-3.

Modern ecological research is hardly possible without detail knowledge of structural and functional traits of individual plant components of the pertinent ecosystem. Rapid development of new portable instruments has facilitated collection of data on physiological activity of plants, even in the field and at multiple scales. Subsequently, it is possible to use them for causal analysis of recent or expected changes in nature at higher, ecologically more relevant levels (whole plant, population, community). This is why the interest in integrative studies based on functional approach has been recently much increasing.

This volume on "Functional Plant Ecology" is an extensively revised and updated second edition of a very successful compendium, which was published several years ago under the title "Handbook of Functional Plant Ecology". The book provides in 23 chapters extensive up-to-date reviews of selected important topics, presented in a very readable style, easily understandable for a broad audience. The aims, historical development and perspectives of functional approach to plant ecology are shortly summarized in the first chapter. The following chapters can be divided into several groups, although such division is not explicitly done in the book.

To the first group belong contributions reviewing structural and functional traits of plant components of some less known biomes, including terrestrial Antarctic and Arctic vegetation, Mediterranean-type ecosystems, and tropical forests. Synthetic view on adaptation of different physiological processes is nicely presented also in a chapter devoted to ecological success of desiccation tolerant plants and lichens. To the second group belongs reviews on more specific aspects of plant functioning as, *e.g.*, responses of plants to heterogeneous irradiance, water relations in plants with different hydraulic architecture, or mineral nutrients acquisition and use. In addition to this, a separate chapter is devoted to structure and function of root system. More structural aspects are discussed in contributions devoted to the architecture of

plant crowns, but consequences of shoot structure for optimisation of light capture are also described.

Unusually large space in the book is devoted to the biotic interactions of plants. This is undoubtedly beneficial for potential readers, because good review articles on these important ecological processes are not much abundant in scientific literature. Recent findings in the fields of competition in plant communities, plant-herbivore interactions, and facilitation, are reviewed in separate chapters. Quite interesting and useful is the chapter describing very complex interactions in the rhizosphere, and their effect on ecosystem functioning. Interactions of plants with pollinators, reviewed in the next contribution, are relatively less complicated, nevertheless indispensable for plant sexual reproduction of many plant species.

I would like to point out three remaining, very interesting synthetic articles on topics of more general character. One of them is devoted to evaluation of ecological significance of inherent variation in relative growth rate and its components. Growth rate as an integrative plant function is more relevant for prediction of plant performance in nature, but it is still less frequently taken into account than traditionally measured individual metabolic processes. The other synthetic article discusses various approaches to the application of remote sensing in ecological research at multiple scales. And, finally, the last chapter of the book is focused on such a delicate topics, like selection of representative species for experimental work in functional ecology, selection of the most suitable criteria on which to compare species, and inference rules for generalizing from vegetation samples.

This concise and nicely printed compendium will be undoubtedly of continuous interest to students and teachers of biological disciplines as an advanced textbook, as well as to scientists and practising plant ecologists as an invaluable source of basic information.

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