Book review

Invertebrates as webmasters in ecosystems

This book arose out of invited contributions to a symposium held at the University of Georgia to mark the retirement of Professor D.A. Crossley Jr. and his distinguished contribution to soil ecology and ecosystem research.

The title, derived from computing terminology, is based on the premise that invertebrate assemblages often assume an organizing function in ecosystems and hence have a role analogous to that of the webmaster in facilitating access to the web. The book is divided into four parts, each containing four chapters which are concerned respectively with (invertebrates and) ecosystem functions, feedback interactions, ecosystem diversity and regional and global scale issues. Topics considered in Part I (Webmaster functions in ecosystems) include the problem of linking the activities of invertebrates at different scales with ecosystem-level processes and functioning, social insects (termites and ants) as keystone arthropods in desert ecosystems, responses of grassland invertebrates to disturbance, and the role of invertebrates in aquatic ecosystems. The four chapters in Part II (Webmasters in feedback interactions and foodwebs) deal respectively with invertebrate herbivory and ecosystem development, the role of biochemical ‘messengers’ in influencing graminoid host plant responses to invertebrate herbivores, the role of invertebrates in soil detrital foodwebs, and relationships between trophic structure, detrital foodwebs and productivity. In Part III (Webmasters and ecosystem diversity) the biodiversity of oribatid mites in tree canopies; relationships between litter type, microarthropod assemblages, and litter decomposition in woodland; ecological effects of exotic fire ants; and the impacts of acid rain and intensive farming on invertebrate species diversity in natural and disturbed ecosystems in central Europe are considered. Part IV (Webmasters in regional and global contexts) deals with ways in which spatial distribution and local conditions influence the role of invertebrates in nutrient cycling in forest ecosystems, influences of insects on forest landscapes, non-linear coupling of biotic and abiotic factors in relation to decomposition processes, and how invertebrate activities could influence the impact of global change on soil processes.

While the contents may not unequivocally support the webmaster hypothesis, this volume does draw together a considerable amount of information on the many and varied ways in which invertebrates may influence ecosystem processes and indicates several avenues for potentially fruitful future work.

J.P. Curry*
Department of Environmental Resource Management, Faculty of Agriculture, University College Dublin, Belfield, Dublin 4, Ireland
*Tel.: +353-1-706-7093; fax: +353-1-706-1102.
E-mail address: james.curry@ucd.ie (J.P. Curry)
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