

F.R. Hauer and G.A Lamberti (eds.). – 2006. *Methods in Stream Ecology, 2nd edition*, Academic Press. ISBN 978-0-12-332907-3.

This is the revised, updated and expanded edition of the well-known *Methods in Stream Ecology* edited by F.R. Hauer and G.A Lamberti. This book provides a broad compendium of methodologies currently used in stream ecology. For over a decade, the book has been a helpful tool for teachers introducing undergraduate and graduate students to stream ecology research and also for scientists wishing to use the state-of-the-art procedures in this research arena. As an indication of its relevant scientific contribution, this book, or particular chapters of it, have been widely cited in research articles published in most of the prestigious scientific journals. This second edition builds upon the quality and scientific rigour of the first edition and also shows the continuous development and scientific advances achieved in stream ecology research. In addition, this new edition explicitly aims to expand the target audience to also serve as a good tool for natural resource managers. This is shown by the incorporation of a new section on methods for assessing stream ecosystem quality. I envision that this section will become further developed in future editions or may even evolve to become a separate book.

The book is well structured, clearly written and has been greatly improved in its graphic design. This new edition has a total of 36 chapters—7 more than the first edition—divided into 6 sections according to major research areas of stream ecology. The sections include a detailed description of a broad variety of methodologies, which are mostly field-based, for assessing a) physical processes, b) material transport, uptake and storage, c) stream biota, d) community interactions, e) ecosystem processes, and f) ecosystem quality. The sections that have undergone a major change from the first edition are B and C. Section B has been clearly expanded by including three new chapters dealing with recent advances on fluvial geomorphic processes, nitrogen limitation and uptake, and dissolved organic carbon. Section C has incorporated methods for assessing three groups of organisms (fungi, macrophytes and bryophytes) that were not considered in the initial

version. In addition, a new chapter on riparian processes and interactions has been added to section E, in recognition of the relevance of the riparian zone on the ecology of streams. Finally, the new section F contains a chapter from the previous edition and two new chapters. One of these chapters addresses the use of benthic algae as biotic indicators, and the other provides ecological assessment approaches from a multi-stressor perspective.

In this new edition there has been a great effort to organise the contents of each chapter following a similar template and structure. This makes the book even more user-friendly than the first edition. A total of 69 stream ecology scientists, mostly from North America, have participated in this book. Each chapter is written by well-known experts on each topic. Therefore, the contents of the chapters reflect the practical legacy of years of active research experience. Each chapter includes an introduction of the theoretical context, a general outline of the proposed methods, a description of the methods that can be used to assess the particular topic, some questions to be approached by the reader, a list of materials needed and a list of key references. All this information is accompanied with field pictures, figures and tables as graphic support to illustrate the explanations and provide help with collecting and analysing the data. Some chapters, especially those of section C, also include simplified taxonomic keys as an introductory step to classifying different groups of stream organisms. Each chapter proposes a variety of methods divided into “basic” or “advanced” according to the level of expertise needed to conduct them. In addition, each method is presented using a step-by-step description. This certainly facilitates the use of the book and broadens its application scope for a large audience, including teaching, scientific and management purposes.

Overall, the editors have done a great job in developing a second edition that clearly goes much further than just updating the first edition. This book will continue to be a masterpiece and a reference in the field of stream ecology. I sincerely recommend it, even to those who already have the first edition.

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