

Methods to Study Litter Decomposition

A Practical Guide

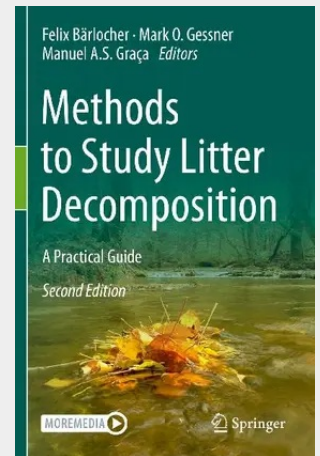
This edited volume is an extensive collection of methods for investigating plant litter dynamics in ecosystems. Particular emphasis is placed on litter decomposition in streams and rivers. The presented methods range from analyses of chemical and physical litter properties to the taxonomic and functional characterization of microbial decomposers, both fungi and bacteria, assessments of litter-consuming invertebrates, and procedures to determine litter dynamics at the stream ecosystem level. Several chapters addressing general topics of data analysis are also included.

This second edition of the book has been greatly expanded. Its now 63 chapters cover both well-established and recently elaborated techniques, some of which have not yet been applied to decomposing litter in streams. Modern molecular techniques ranging from next-generation sequencing to proteomics receive special attention among the 20 chapters that are entirely new. Numerous methods on characterizing litter consumers have also been added to fill an evident gap of the first edition. However, the basic original concept and all of the previous chapters have been retained, although most of them have been thoroughly updated.

Typical contributions provide step-by-step protocols that are preceded by brief reviews of the ecological significance and the principles underlying the method. Where available, short compilations of published data have been added in overview tables to provide background information on the range of results to expect. Useful hints, a discussion of potential weaknesses, and key references are provided at the end. Hands-on material useful to implement several of the presented methods (e.g. computer code, calculation sheets) is available online.

The book is written for students embarking on studies of plant litter dynamics and for established researchers wishing to expand the scope of their methodological toolbox to study litter decomposition and the microbial decomposers and invertebrates involved in the process. The primary intended audience is aquatic ecologists, since many of the methods presented in the book focus on streams and stream organisms. However, the great majority of the protocols can be easily adapted or even directly applied to coastal and terrestrial ecosystems. Consequently, they should be of equal interest to scientists investigating plant litter dynamics in habitats such as mangroves and salt-marshes, terrestrial grasslands and forests.

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192,59 €

179,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783030305178

Medium: Buch

ISBN: 978-3-030-30517-8

Verlag: Springer

Erscheinungstermin: 26.08.2021

Sprache(n): Englisch

Auflage: 2. Auflage 2020

Produktform: Kartoniert

Gewicht: 1076 g

Seiten: 604

Format (B x H): 155 x 235 mm

