

Foreword

The story behind this book starts about a decade ago, in late 2007, when the two of us met for the first time. It was at a workshop that TH organized at the Technical University of Munich, Germany, and at which JMJ participated. We have enjoyed our joint projects ever since. Two of these have led to the formulation of the hierarchy-of-hypotheses (HoH) approach, namely our work on Jeschke *et al.* (2012) and discussions during the workshop 'Tackling the emerging crisis of invasion biology: How can ecological theory, experiments, and field studies be combined to achieve major progress?' (March 2010 in Benediktbeuern, Germany; workshop of the specialist group 'Theory in Ecology' of the Ecological Society of Germany, Austria and Switzerland, GfÖ), organized by TH, Sylvia Haider, Anna Pahl and JMJ (see Heger *et al.*, 2013). In Jeschke *et al.* (2012), we have used this approach to classify and analyse empirical tests of six major invasion hypotheses, finding only mixed empirical support. We further developed the HoH approach in Heger and Jeschke (2014) with a focus on the enemy release hypothesis.

In addition to dividing a given major hypothesis into more specific sub-hypotheses, it has become clear that a tool for connecting existing invasion hypotheses would be very useful. Such a tool could serve as a map for invasion biology, where the major hypotheses are landmarks such as cities in an ordinary map of a country. A network of hypotheses could thus potentially work as such a tool (Jeschke, 2014).

We therefore decided to take the next logical step with this book: to combine the HoH approach with hypothesis networks for invasion biology. A book allows for outlining the approach, suggestions and challenges much more than a series of papers published in different journals over different years. We used this book to further develop the HoH approach by inviting critical comments (Part I), apply it to 12 major invasion hypotheses (Part II) and explore how it can be expanded to a hierarchically structured hypothesis network (Chapter 7 and Part III). But the book does not come alone. It is important to also check out the companion website that features, for instance, data from the about 1100 studies analysed in Part II of the book: www.hi-knowledge.org. Importantly and as outlined in Chapter 17, this website will be further updated and developed, and we envision it will become a powerful web portal for invasion biology and other research disciplines in the future. The latter is possible because the HoH approach and hypothesis networks are not at all restricted to invasion biology but are applicable across all research disciplines.

This book contains 18 chapters written by 23 authors from 13 countries. Although being an edited volume and thus benefiting from the combined expertise of its multiple authors with diverse backgrounds, the book has also elements of a monograph because we were involved in most chapters. This involvement hopefully made sure that the book follows a clear structure and consistent line of thought, which is a frequent challenge for edited volumes. We hope that this mix of a monograph and edited volume is a good read, and that you won't regret you got a copy of it.

The chapters in this book were peer-reviewed. JMJ handled the reviewing process; only if he was an author and TH was not, TH handled the manuscripts. We reviewed all chapters that we did not write ourselves (editorial review). For every chapter, there was at least one additional reviewer who remained anonymous unless he/she opted to reveal their name. Chapters authored by both of us were reviewed by two referees. In this way, each chapter was reviewed by 2–3 experts. Reviewers were either authors of other book chapters or other experts on the topic. Chapters 2 to 6 in the book followed a different review process: Chapter 2 was openly reviewed in Chapters 3–5, and we respond to the points raised in these open reviews in Chapter 6.

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The book does not have to be read from the beginning to the end. For example, if you are mainly interested in our suggestions on how to improve research synthesis, in the hierarchy-of-hypotheses (HoH) approach and hypothesis networks, you can focus on Parts I and III of the book and only read Chapter 7 in Part II. If, however, you are mainly interested in one or two particular invasion hypotheses, you can pick the relevant chapter(s) in Part II of the book. If you would like to get an overview of existing invasion hypotheses and a synthesis of related empirical studies, you may go to Chapters 7 and 17.

We wish you an enjoyable read and would highly appreciate any constructive feedback you might have.

With our best wishes,
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