PREFACE

This book focuses on ‘resource ecology’, which we defined as ‘the ecology of trophic interactions between consumers and their resources’. In our endeavour to shape the discipline of ‘resource ecology’ further, we invited some world-class scientists to think with us. We thus organised a symposium where we made sure that we paid attention to the original Greek meaning of the word: we discussed, ate and drank together and, for health reasons, made sure that we hade enough time for strolling and bicycling along the banks of the River Rhine. We even climbed a beautiful mediaeval church tower dedicated to Saint Cunera dating back to the year that Columbus sailed for America. In ecology, spatial ecology is an up-and-coming domain of science. It addresses the effects of space and scale on the dynamics of individual species and on the structure and dynamics of multi-species assemblages. More than a few recent studies demonstrate the significance of taking into account the spatial structure of resources on the population dynamics and assemblage structure of consumers. We believe that bringing together scientists specialised in foraging theory with those who know much about spatial ecology can create a new context from which new theory will emerge.

Every chapter was written on invitation. We as editors had outlined what we had in mind and sent that outline to the selected authors. We asked them to have their chapter ready before we started the symposium, and then we sent each contribution to two other members of the symposium and asked them to prepare a thoughtful review of the chapter. We were very happy to invite a number of the postgraduate students from our own research group to attend the symposium: we asked them to take extensive notes but especially to join in the discussions. Because everyone who was present had read the chapters prior to the symposium, we only asked the authors to shortly introduce their chapter, but we gave quite some time to the reviewers to give their comments and share with us their positive ideas about the chapter, but also their critical thoughts and remarks. We then started extensive discussions about the positive and negative sides of each chapter and tried to find our way towards a common understanding. Notes of these discussions were extensively taken by a team of a postgraduate student and a senior researcher. After the symposium, these notes and the comments by the reviewers were sent to the authors. We as editors had independently made our own comments on the written texts; these comments were also sent to the authors. Every author then changed his original paper as he thought fit, after which we went through a second round of editorial interactions. In this process of peer-reviewing some chapters did not make it to the end-stage; we sincerely hope that if we prepare a second edition of this book the research reported in those chapters can be incorporated then. Every chapter was thus double-refereed in a very strict sense of the word.

As stated, we have selected the authors and the range of subjects with a special audience in mind, and a special scientific goal. We have edited this volume accordingly. First, the audience. In the sciences nowadays postgraduate students and post-docs form the backbone of most laboratories and research groups. Together with more senior scientists, they test the new ideas and develop new theories. To show that the forefront of science is, by definition, unsettled, uncertain and undecided, we have included in the present volume a series of commentaries. Each chapter is thus followed by a commentary that highlights some of the discussions we had during the symposium. Even though each chapter was carefully refereed and edited, there is still an ongoing debate about pros and cons. We were thus particularly pleased that a group of postgraduate students were with us during the symposium because the present volume is specifically aimed at post-docs, postgraduate students and final-year undergraduate students. The commentaries also serve a second purpose, namely to demonstrate to students that criticism on each other's work is normal in science. Because we believe that new theory is needed to explain the coexistence of species or the numerical abundance of assorted animal species in various assemblages, which is one of the top unsolved riddles of the 21st century. In this book, we will contribute to the advancement of such new theory. In resource ecology, foraging is the central process because it leads to growth, survival and reproduction of the animal. Resource ecology thus deals with foraging and ultimately with fitness of the consumer, and we believe that a deeper understanding of resource use is a key to unlock the door obscuring coexistence and species diversity rules. We have concentrated the contributions that we solicited from scientists dealing with above-ground herbivory only. In future, we would like to include studies on carnivores, parasites and diseases.

Every chapter ends with some new testable hypotheses: we truly hope that testing these hypotheses will bring the exciting science of resource ecology further.

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