

## Preface

### Editorial Commentary: Body Size and the (Re)unification of Ecology

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### THE NEED FOR A MORE INTEGRATIVE APPROACH TO ECOLOGY AND A RETURN TO THE ROOTS OF THE SCIENCE

Despite having its roots among the polymath pioneers of the late nineteenth and early twentieth centuries, ecological research has, for many decades, been increasingly divided and compartmentalised into seemingly discrete subdisciplines, often with each developing its own unique approaches and parlance. This trend has recently started to reverse somewhat, as new (and old) bridges are formed (or reformed) between previously disparate fields, largely as a result of increased collaborative efforts from groups of researchers attempting to achieve a more synthetic understanding. In some ways this represents a renaissance of the early days of ecology, before the often arbitrary distinctions between behavioural, community, and ecosystems ecology became firmly entrenched (Ings *et al.*, 2009; Riede *et al.*, 2010). The stimulus behind much of this more integrated approach, and credit for the undoubted dividends it has started to pay, can be attributed at least in part to financial support structures that have been put in place specifically for the express

purpose of enabling such unifying ventures to develop, via, for instance, the LTER research networks in the United States, the European Union Framework Programmes and European Science Foundation (ESF), among others. The ESF, in particular, has supported a wide range of international collaborations in ecological science, from funding primary research grants to more discursive research networks. The latter have been designed primarily as think-tanks to bring scientists together to work on existing datasets and to develop new ecological theories, by integrating their respective fields of expertise and facilitating access to information that would otherwise be difficult (or impossible) to obtain. There have been many notable success stories emerging from this approach, including the production of a series of highly influential papers arising from the InterACT Network over the past decade (e.g. Berlow *et al.*, 2004). The current thematic volume of *Advances in Ecological Research* continues in this tradition, by presenting a selection of papers that have arisen from the recent ESF research network, *SIZEMIC* (<http://www.sizemic.org>), which was initiated and led by Richard Law and Julia Blanchard between 2006 and 2011 (Blanchard, 2011). The primary objective of the network was to integrate pure and applied approaches from aquatic and terrestrial ecology to support and develop an ecosystem approach, with the principal focus being on assessing the role of body size in multispecies systems (communities, food webs, ecosystems).

The seven papers in this volume are the product of collaborations resulting from the activities of *SIZEMIC*, and the evolution of the ideas presented here can be linked to recent publications that have appeared in other thematic volumes of *Advances in Ecological Research* and elsewhere within the past few years, several of which (e.g. Woodward *et al.*, 2010a,b) were also wholly or partly supported by this ESF network. Although funded by the ESF, the *SIZEMIC* network is by no means exclusively European in its membership nor in its outlook, as highlighted by the fact that many of the authors contributing to this volume are from further afield, with contributors from North and South America, Europe and Asia, and study systems ranging from the Arctic to the Temperate and Tropical Zones, and to the Antarctic. As such, the network of researchers and the range of available data sources that have emerged are truly global in scope, and this in itself is an impressive and notable achievement of the ESF programme, even beyond the scientific discoveries that have been made. This has facilitated important new insights into both the generalities (e.g. Gilljam *et al.*, 2011) and the apparent uniqueness of the role of body size or other drivers (e.g. Henri *et al.*, 2011; Jacob *et al.*, 2011) within ecosystems across the world.