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ECOSYSTEMS

EDITORIAL

How Are We Doing? Reflections on the First Year of *Ecosystems*

ACCOMPLISHMENTS AND CHALLENGES

Ecosystems was established with a broad scope, recognizing that ecosystem science extends from bounded systems, to spatially complex landscapes, to the biosphere; across temporal scales from seconds to millennia; and across traditional boundaries of scale, among disciplines, and between basic research and management. In our inaugural editorial, we expressed the hope that *Ecosystems* would become the focal journal for ecosystem science, and cover the full breadth of the discipline. Recognizing that we are at a very early successional stage in the development of *Ecosystems*, it is useful to reflect on our first year and examine how we are doing so far.

Composition of the first volume of *Ecosystems* reflects reasonable balance (Figure 1). *Ecosystems* published 47 articles and 5 commentaries or introductions to special features during its first year. The majority of papers were empirical (45%) or conceptual (38%) in their approach. Nineteen percent had a primary focus on theory or model development. More articles focused on terrestrial (55%) than aquatic ecosystems (23%), with the remaining 21% applicable to both ecosystem types. More articles were characterized as primary research (55%) than as synthesis (45%). With Special Features excluded, primary research accounted for 84% of the articles. Although articles on applied ecosystem ecology are welcome, volume 1 was dominated by basic (87%) rather than applied (13%) research. We hope to see more management and policy applications of ecosystem ecology in future submissions.

In our inaugural editorial, we highlighted four frontiers in ecosystem science in which we especially hoped to encourage progress and manuscripts. *People and ecosystems* were addressed by several papers that bridged the natural and social sciences. A number of other papers addressed aspects of ecosystem management in habitats as diverse as lakes and deserts, and the long-term ecological legacies of human land use. However, we believe that topics of sustainability, ecosystem management, and integrative analyses of social and ecological systems are under-represented in the journal and should become a much more important element as time goes on. To encourage this, we have invited several economists and ecologists to address the valuation of ecosystem services in a future issue.

Spatial dynamics and scale shifts are an inescapable feature of ecosystem research and appeared in 38% of the papers published in *Ecosystems*. The articles that emphasized spatial dynamics or scale represent a broad, perhaps eclectic, group. For example, spatial dynamics considered in the journal ranged from ungulate foraging patterns and energetics in a heterogeneous landscape, to flooding regimes and multiple trophic levels in the Everglades, to integration of "population" and "landscape" approaches to populations in space, to landscape implications of alternative forest harvesting regimes. We encourage and expect to publish a substantial number of excellent papers in this vein. In particular, a spatial perspective may foster insights into the interactions between species and ecosystem processes. In addition, understanding and predicting spatial variability in ecosystem processes remains an under-developed area of ecosystem ecology where we see the opportunity for substantial progress in the coming years. A forthcoming set of invited articles will address this topic across a wide range of ecosystems, synthesizing what is known and identifying critical research needs.

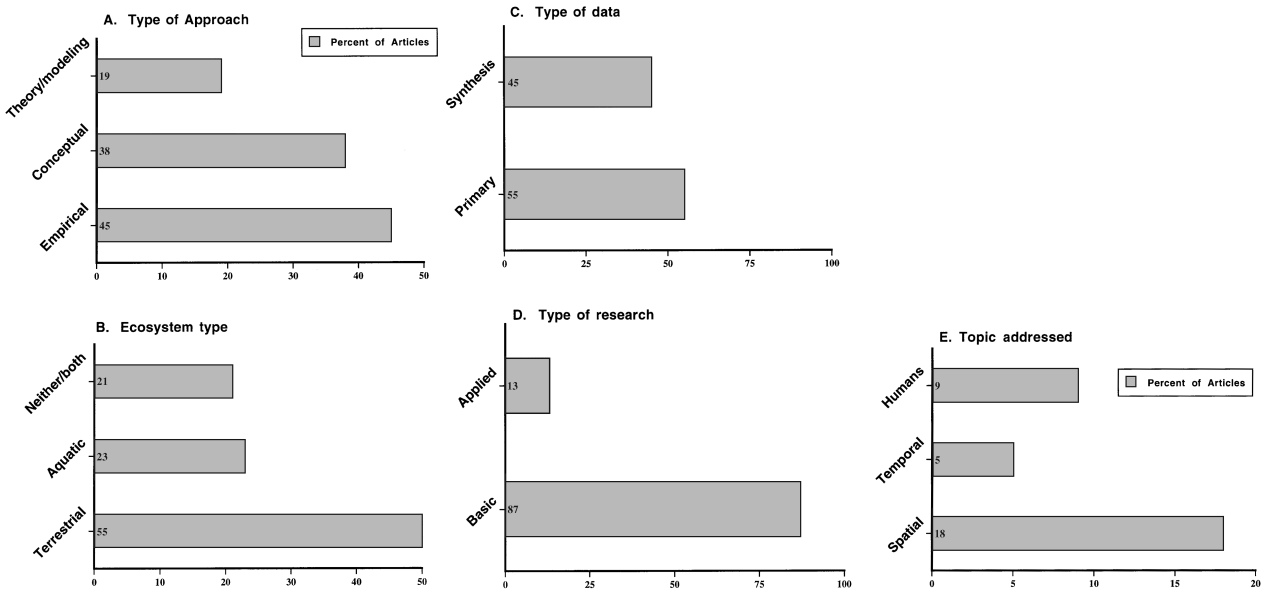

Figure 1. (A-E) Composition of the first volume of *Ecosystems*.

Cross-disciplinary linkages are well developed and abundantly evident among the biological, chemical, and physical subdisciplines that make up ecosystem science. However, we find that integrated analyses of social and ecological systems are sorely lacking, and perhaps the most important research need for sustainability of society and ecosystems. Our attempts to attract interdisciplinary manuscripts that span the social and natural sciences have been frustrated by many difficulties in cross-disciplinary communication. For example, notions of what constitutes a significant, publishable research finding differ across disciplines. Cultural differences among disciplines are compounded by differences in jargon, methods, and statistical approaches. These differences appear to be a significant impediment to the publication of innovative interdisciplinary research. To increase the visibility of this issue, we have invited a diverse group of scholars to contribute to a forum in *Ecosystems* on barriers to cross-disciplinary publication. Most importantly, we wish to challenge the community of ecosystem scientists to think broadly about integrated analyses of social and ecological systems, to embrace the diversity of views likely to emerge in this frontier area, and to submit the best of their creative work to *Ecosystems.*

Temporal scale shifts, like spatial scale shifts, are ubiquitous in ecosystems. However, research addressing interactions across time scales appears less frequently than its spatial counterpart (comprising only 11% of the articles) on the pages of *Ecosystems.* Interactions of fast and slow variables are a key to forecasting in ecology, and one of the most exciting areas of research for theoreticians and empiricists concerned with long-term dynamics. To further advance this important area, we plan to devote a special issue to it in the future.

Synthesis of diverse information into compact models, analyses, conceptual frameworks, or rules of thumb has become a central challenge to ecologists. Synthesis is crucial for fully appreciating the depth and breadth of what we know within our discipline, stimulating new research directions, compressing information to facilitate communication, and transferring information to decision makers and the public in clear, useful ways. *Ecosystems* has published some outstanding synthesis papers in the past year. Several special features (Whole-ecosystem Experiments, Complex Adaptive Systems, and Large, Infrequent Disturbances) provided up-to-date synthesis of what is known in areas important to the future of ecosystem science. In addition, several mini-reviews provided insightful syntheses of topics ranging from the quantification of spatial pattern to global patterns of soil erosion. We encourage the submission of synthetic papers, and hope to expand our coverage of synthesis in the future.

In their guest editorial highlighting the seventh Cary Conference, which addressed the future of ecosystem science, Pace and Groffman (1998) noted the importance of integrating ecosystem science with the full range of ecology, from individuals to landscapes. They argue that without such integration we are ill-prepared to provide scientific under-

standing of the "rising tide of human-accelerated environmental change." We agree; clearly, there is much opportunity for more innovative and integrative work in ecosystem science. We encourage the submission of integrative papers that link ecosystems to all aspects of ecology.

VISIBILITY AND IMPACT

An important milestone for any new scientific journal is that it be included in the major international indexing services. The impact of articles submitted to *Ecosystems* depends, in part, on the ability of scientists around the world to find and access relevant articles from the journal. We are very pleased to report to our readership that *Ecosystems* is indexed in BIOSIS, Chemical Abstracts, and Current Contents/Agriculture, Biology & Environmental Sciences.

In addition, access to information about *Ecosystems* over the Internet provides easy reference to the contents of the journal, and guidelines for authors. See our web site at http://link.springer.de/link/service/journals/10021.

We are happy to announce the addition of a "Short Communication" category of papers in *Ecosystems.* This category was designed to satisfy the need for terse, efficient communication of exceptionally timely research results through a fast-track process. Springer-Verlag has agreed to provide an accelerated production process for the inclusion of up to six printed pages in any issue of *Ecosystems* for short papers that the Editors deem exceptional. We expect that Short Communications will be 2 or 3 printed pages in total length, including display items and references. Manuscripts that may be appropriate for fast-track publication as a short communication should be submitted to the editorial office following the usual procedures and labeled for consideration as a "Short Communication."

A BIG THANK YOU

Ecosystem ecology is often conducted through the collaborative efforts of number of different investigators over a sustained period of time. The inception and development of *Ecosystems* fits well within this operating mode, and the success of the journal during its first year owes largely to the efforts of many people. The Advisory and Editorial Board members have provided outstanding service over the past two years, offering sound advice to us and constructive guidance and well-considered evaluations on the articles they oversee. The quality of the articles in *Ecosystems* is very much a function of their diligence. The staff at Springer-Verlag has provided unstinting support and promotion of the journal and has shared our vision of a unified ecosystem science. Suzann McClenahan, the Managing Editor of *Ecosystems,* does a superb job in overseeing all aspects of the Editorial Office, maintaining communications with authors, editors and reviewers, and working closely with us to make an effective team. Finally, we appreciate the support provided to this new journal by the ecological community, many of whom have submitted manuscripts or contributed their time as ad hoc reviewers. We thank all for their generous support, and we look forward to the ongoing success of *Ecosystems.*

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REFERENCE

Pace M, Groffman P (eds). 1998. Successes, limitations and frontiers in ecosystem science: Reflections on the seventh Cary Conference. Ecosystems 1:137–42.