

PREFACE AND ACKNOWLEDGMENTS

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This volume was conceived during the organization of a scientific symposium to celebrate the 75th birthday of the Rocky Mountain Biological Laboratory (RMBL), an independent field station that was founded in 1928. RMBL occupies Gothic, Colorado, an abandoned mining town named for the mountain whose cliffs loom nearby. Generations of students and research scientists have studied and worked in this place, and more than 1,000 publications have emerged from research done there. As we contemplated the scientific contributions of the symposium speakers, we were struck by the fact that their work was known well beyond the small cadre of people who study montane systems or their particular taxonomic group. We wondered: Why do empirical studies of particular organisms in particular places interest people who work with other systems?

Ecological systems present such a diversity of organisms, environments, and ecological relationships, and involve processes that are so stochastic and contingent, that ecologists continually debate whether widely applicable generalizations exist in ecology and, if so, how best to identify them. Empirical field studies contribute to the search for generalization in two obvious ways. They constitute the empirical core data in a "bottom-up" search for broad empirical patterns that guide the development of explanatory general theory. They also constitute the empirical core data in "top-down" tests of theory. Given this role of empirical studies, it would seem that the fastest route to progress would be to repeat measurements or tests over as many systems as possible. Paradoxically, many ecologists—including participants in the RMBL birthday symposium—have adopted a third approach: they study a single system in depth, often over many years.

We have dubbed this third approach "the ecology of place" by analogy to the "sense of place" ascribed to Aldo Leopold, a pioneer of American ecology and founder of the fields of conservation biology, restoration ecology, and wildlife management. Leopold's career led him to appreciate the complex interconnections of soil, water, and biota (including humans) that define what

he called the "biotic mechanism" (ecological processes) of "the land" (the ecosystem). Leopold argued that not only the motivation for conserving the health of the land but also the knowledge about how to do so stems from the intuitive understanding that arises from deep personal involvement in the natural history of a particular place. Might such natural-history understanding of single systems contribute to general scientific understanding in ecology as well as to conservation know-how? And if so, how?

In recent years there has been much discussion about the adequacy of current ecological knowledge, but rather little discussion about how that knowledge has been gained. There is no better time than now, we thought, to initiate discussion of how alternative approaches contribute to ecological understanding, and how the infrastructure of science can facilitate those approaches. Given Ian's position as director of a field station, Mary's belief in the value of in-depth case studies, and the fact that pattern-based and hypothetico-deductive approaches had already received attention in the literature, we decided to focus primarily on the "ecology of place" approach. To that end, we invited accomplished field ecologists and ecology-watchers (most from outside the RMBL community) to reflect on the role of "place" in their research and in the science of ecology more broadly. We were overwhelmed by the enthusiastic response we got to our invitations; ecologists love to talk about what their systems have taught them!

We hope the ideas presented here will stimulate broad discussion about how we ecologists do, can, and should approach our science, and about the legitimate role that natural history—the aspect of our work that so many of us find the most satisfying—can play in it. We invite you to explore with us the apparent paradox that general understanding can emerge from a deep understanding of the specific.

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