

REAL WORLD ECOLOGY

Large-Scale and Long-Term Case Studies and Methods

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EDITORS

Ecologists are increasingly required to expand research efforts to address the long-term and large-scale ecological and environmental implications of management and restoration efforts. Challenges resulting from integration across these large spatial and temporal scales include constraints on sampling, replication and control sites that frequently preclude the use of traditional experimental designs and statistical analyses. These issues have led to a paradigm shift in methodologies for ecosystem-level research. New tools are being developed and implemented for design and analysis of large-scale, long-term experiments. This book presents case studies that highlight some exciting new developments in ecosystem research. Each case study identifies inherent constraints posed by traditional experimental tools and then suggests solutions by appropriately matching novel experimental designs and analyses to the research issues. A framework resulting from these studies describes scientific questions guiding this paradigm shift and relates them to the analyses, the quantity and quality of available data, and the extent of knowledge about processes and mechanisms. This book provides invaluable guidance to ecologists trying to conceptualize, design, analyze, and synthesize real world ecological research.

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