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Nota di contenuto	Section I. Overview -- Ecological monitoring : The heart of the matter / Robert A. Gitzen and Joshua J. Millspaugh -- An overview of statistical considerations in long-term monitoring / Joel H. Reynolds -- Monitoring (that) matters / Douglas H. Johnson -- Maximizing the utility of monitoring to the adaptive management of natural resources / William L. Kendall and Clinton T. Moore -- section II. Survey design -- Spatial sampling designs for long-term ecological monitoring / Trent McDonald -- Spatially balanced survey designs for natural resources / Anthony R. Olsen, Thomas M. Kincaid and Quinn Payton -- The role of monitoring design in detecting trend in long-term ecological monitoring studies / N. Scott Urquhart -- Estimating variance components and related parameters when planning long-term

monitoring programs / John R. Skalski -- Variance components estimation for continuous and discrete data, with emphasis on cross-classified sampling designs / Brian R. Gray -- Simulating future uncertainty to guide the selection of survey designs for long-term monitoring / Steven L. Garman, E. William Schweiger, and Daniel J. Manier.
Section III. Data analysis -- Analysis options for estimating status and trends in long-term monitoring / Jonathan Bart and Hawthorne L. Beyer -- Analytical options for estimating ecological thresholds : statistical considerations / Song S. Qian -- The treatment of missing data in long-term monitoring programs / Douglas H. Johnson and Michael B. Soma -- Survey analysis in natural resource monitoring programs with a focus on cumulative distribution functions / Thomas M. Kincaid and Anthony R. Olsen -- Structural equation modeling and the analysis of long-term monitoring data / James B. Grace, Jon E. Keeley Darren J. Johnson, and Kenneth A. Bollen -- section IV. Advanced issues and applications -- GRTS and graphs : monitoring natural resources in urban landscapes / Todd R. Lookingbill, John Paul Schmit, and Shawn L. Carter -- Incorporating predicted species distribution in adaptive and conventional sampling designs / David R. Smith, Lei Yuancai, Christopher A. Walter, and John A. Young -- Study design and analysis options for demographic and species occurrence dynamics / Darryl I. MacKenzie -- Dealing with incomplete and variable detectability in multi-year, multi-site monitoring of ecological populations / Sarah J. Converse and J. Andrew Royle -- Optimal spatio-temporal monitoring designs for characterizing population trends / Mevin B. Hooten, Beth E. Ross, and Christopher K. Wikle -- Use of citizen-science monitoring for pattern discovery and biological inference / Wesley M. Hochachka, Daniel Fink, and Benjamin Zuckerberg -- section V. Conclusion -- Institutionalizing an effective long-term monitoring program in the US National Park Service / Steven G. Fancy and Robert E. Bennetts -- Choosing among long-term ecological monitoring programs and knowing when to stop / Hugh P. Possingham, Richard A. Fuller, and Liana N. Joseph.

Sommario/riassunto

To provide useful and meaningful information, long-term ecological programs need to implement solid and efficient statistical approaches for collecting and analyzing data. This volume provides rigorous guidance on quantitative issues in monitoring, with contributions from world experts in the field. These experts have extensive experience in teaching fundamental and advanced ideas and methods to natural resource managers, scientists and students. The chapters present a range of tools and approaches, including detailed coverage of variance component estimation and quantitative selection among alternative designs; spatially balanced sampling; sampling strategies integrating design- and model-based approaches; and advanced analytical approaches such as hierarchical and structural equation modelling. Making these tools more accessible to ecologists and other monitoring practitioners across numerous disciplines, this is a valuable resource for any professional whose work deals with ecological monitoring. Supplementary example software code is available online at www.cambridge.org/9780521191548.