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Nota di contenuto	Part 1. Introduction -- Ecological informatics : an introduction / Friedrich Recknagel ; William K. Michener -- Part 2. Managing ecological data -- Project data management planning / William K. Michener -- Scientific databases for environmental research / John H. Porter -- Quality assurance and quality control (QA/QC) / William K. Michener -- Creating and managing metadata / William K. Michener -- Preserve : protecting data for long-term use / Robert B. Cook ; Yaxing Wei ; Leslie A. Hook ; Suresh K.S. Vannan ; John J. McNelis -- Data discovery / William K. Michener -- Data integration : principles and practice / Mark Schildhauer -- Part 3. Analysis, synthesis and forecasting of ecological data -- Inferential modelling of population dynamics / Friedrich Recknagel ; Dragi Kocev ; Hongqing Cao ; Christina Castelo Branco ; Ricardo Minoti ; Saso Dzeroski -- Process-based modeling of nutrient cycles and food-web dynamics / George Arhonditsis ; Friedrich Recknagel ; Klaus Joehnk -- Uncertainty analysis by Bayesian inference / George Arhonditsis ; Dong-Kyun Kim ; Noreen Kelly ; Alex Neumann ; Aisha Javed -- Multivariate data analysis by means of self-organizing maps / Young-Seuk Park ; Tae-Soo Chon ; Mi-Jung Bae ; Dong-Hwan Kim ; Sovan Lek -- GIS-based data synthesis

and visualization / Duccio Rocchini ; Carol X. Garzon-Lopez ; A. Marcia Barbosa ; Luca Delucchi ; Jonathan E. Olandi ; Matteo Marcantonio ; Lucy Bastin ; Martin Wegmann

Part 4. Communicating and informing decisions -- Communicating and disseminating research findings / Amber E. Budden ; William K. Michener -- Operational forecasting in ecology by inferential models and remote sensing / Friedrich Recknagel ; Philip Orr ; Annelie Swanepoel ; Klaus Joehnk ; Janet Anstee -- Strategic forecasting in ecology by inferential and process-based models / Friedrich Recknagel ; George Arhonditsis ; Dong-Kyun Kim ; Hong Hanh Nguyen -- Part 5. Case studies -- Biodiversity informatics / Cynthia S. Parr ; Anne E. Thessen -- Lessons from bioinvasion of Lake Champlain, U.S.A. / Timothy B. Mihuc ; Friedrich Recknagel -- The Global Lake Ecological Observatory Network / Paul C. Hanson ; Kathleen C. Weathers ; Hilary A. Dugan ; Corinna Gries -- Long-term ecological research in the Nakdong River : application of ecological informatics to harmful algal blooms / Dong-Gyun Hong ; Kwang-Seuk Jeong ; Dong-Kyun Kim ; Gea-Jae Joo -- From ecological informatics to the generation of ecological knowledge : long-term research in the English Lake District / S.C. Maberly ; D. Ciar ; J.A. Elliott ; I.D. Jones ; C.S. Reynolds ; S.J. Thackeray ; I.J. Winfield

Sommario/riassunto

"This book introduces readers to ecological informatics as an emerging discipline that takes into account the data-intensive nature of ecology, the valuable information to be found in ecological data, and the need to communicate results and inform decisions, including those related to research, conservation and resource management. At its core, ecological informatics combines developments in information technology and ecological theory with applications that facilitate ecological research and the dissemination of results to scientists and the public. Its conceptual framework links ecological entities (genomes, organisms, populations, communities, ecosystems, landscapes) with data management, analysis and synthesis, and communicates new findings to inform decisions by following the course of a loop. In comparison to the 2nd edition published in 2006, the 3rd edition of Ecological Informatics has been completely restructured on the basis of the generic conceptual framework provided in Figure 1. It reflects the significant advances in data management, analysis and synthesis that have been made over the past 10 years, including new remote and in situ sensing techniques, the emergence of ecological and environmental observatories, novel evolutionary computations for knowledge discovery and forecasting, and new approaches to communicating results and informing decisions"--Provided by publisher
