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Titolo	Ethical and Philosophical Issues in Medical Imaging, Multimodal Learning and Fusion Across Scales for Clinical Decision Support, and Topological Data Analysis for Biomedical Imaging: 1st International Workshop, EPIMI 2022, 12th International Workshop, ML
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Altri autori (Persone)	KimminsJ. P
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Preface; Acknowledgements; List of Abbreviations; 1. Introduction: Why do we Need Ecosystem-Level Models as Decision-Support Tools in Forestry?; Introduction; Human population growth: the ultimate environmental threat to the world's forests; The failure of science to provide the necessary analytical and forecasting tools for resource management: the question of complexity and prediction; Complexity and prediction in forestry: levels of biological organization and integration
The role of process-based, ecosystem-level hybrid simulation models as a component of the solution to problems posed by complexity in forestryTake-home message; Additional material; Notes; Notes; 2. Ecological and Environmental Concepts that should be Addressed in Forestry Decision-Support tools; Introduction; The problem of uncritical use of, or failure to define, termscommonly used in environmental debates about forestry: the dangers posed by the anthropomorphizing of ecosystems; Ecosystem stability; Ecosystem resilience; Ecosystem health; Forest ecosystem integrity
Are ecosystems 'complex adaptive systems'?Old growth; Dangers of the misuse of terminology: feeding inappropriate belief systems; Take-home message; Additional material; 3. Hybrid Simulation in the Context of Other Classes of Forest Models, and the Development of the FORECAST Family of Hybrid Simulation Models; Introduction; A three-level classification of models; Brief history of the development of these three categories; The FORECAST-HORIZON family of hybrid simulation models; Major categories of hybrid simulation models we have developed; Take-home message; Additional material
4. Forestry in Transition: The Need for Individual Tree ModelsIntroduction; The ideal individual tree model; Individual tree models as management tools; FORCEE: a comprehensive, spatially explicit, individual tree management and agroforestry model; Take-home message; Additional material; 5. Stand-Level Hybrid Models as Tools to Support Ecosystem-Based Management; Introduction; Classification of stand-level hybrid models; Description of the hybrid modelling approach employed in FORECAST; Overview of FORECAST evaluation studies; Applications of FORECAST; Development of FORECAST, Climate
Take-home messageAdditional material; 6. Landscape-Level Models in Forest Management; Introduction; Development of landscape-level models for forest management; The LLEMS model: a multi-value, local landscape extension of FORECAST for variable retention harvesting; Example application of LLEMS to evaluate dispersed retention alternatives; Ongoing development; Take-home message; Additional material; 7. Educational Models in Forest Management; Introduction; The use of ecological models as educational tools; FORTOON: a high-school-level, introductory, multiple-value forest management game
PFF: Possible Forest Futures

Sommario/riassunto

Modelling is an important tool for understanding the complexity of forest ecosystems and the variety of interactions of ecosystem components, processes and values. This book describes the hybrid approach to modelling forest ecosystems and their possible response to natural and management-induced disturbance. The book describes the FORECAST family of ecosystem management models at three different spatial scales (tree, stand and landscape), and compares them with alternative models at these three spatial scales. 1. INTRODUCTION: WHY DO WE NEED ECOSYSTEM-LEVEL MODELS AS A DECISION-SUPPORT TOOL IN FORESTRY?2. ECOLOGICAL AND ENVIRONMENTAL CONCEPTS THAT SHOULD BE ADDRESSED IN FORESTRY DECISION SUPPORT TOOLS3. HYBRID SIMULATION (HS) IN THE CONTEXT OF OTHER CLASSES

OF FOREST MODELS, AND THE DEVELOPMENT OF THE FORECAST FAMILY OF HS MODELS4. FORESTRY IN TRANSITION: THE NEED FOR INDIVIDUAL TREE MODELS5. STAND-LEVEL MODELS IN FOREST MANAGEMENT AS TOOLS TO SUPPORT ECOSYSTEM-BASED MANAGEMENT6. LANDSCAPE-LEVEL MODELS IN FOREST MANAGEMENT7. EDUCATIONAL MODELS IN FOREST MANAGEMENT8. HOW TO DEVELOP A MODEL FOR FOREST MANAGEMENT9. THE ROLE OF ECOSYSTEM MANAGEMENT MODELS IN ADAPTIVE MANAGEMENT, CERTIFICATION AND LAND RECLAMATIONINDEXREFERENCESThe book will help forest managers to understand what to expect from ecosystem-based forest models; serve as a tool for use in teaching about sustainability, scenario analysis and value trade-offs in natural resources management; and assist policy makers, managers and researches working in assessment of sustainable forest management and ecosystem management. Several real-life examples of using the FORECAST family of models in forest management and other applications are presented from countries including Canada, China, Spain and the USA, to illustrate the concepts described in the text. The book also demonstrates how these models can be extended for scenario and value trade-off analysis through visualization and educational or management games.