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KEY=FEOLI - NICOLE MILA

SPATIAL ANALYTICAL

Routledge The ability to manipulate spatial data in different forms and to extract additional meaning from them is at the heart of GIS, yet genuine spatial analysis tools are rarely incorporated into commercial software, thus seriously limiting their usefulness. The future of GIS technology will depend largely on the incorporation of more powerful analytical and modelling functions - and there is agreement within the GIS community of the urgent need to address these issues. This text attempts this task. It presents the latest information on incorporating spatial analysis tools into GIS, and includes concepts and applications from both the environmental and socio-econimc sciences.

COMPUTER ASSISTED VEGETATION ANALYSIS

Springer Science & Business Media There are many books and computer programs dealing look ahead rather than pondering the past. This is a with data analysis. It would be easy to count at least a manual of recent views that evolved in the study of hundred, yet few of these would show applications in vegetation. This book is intended to emphasize the new vegetation science. Today in the face of environmental acquisitions which we believe significantly affect the degradation caused by anthropogenic pressures on the future of vegetation analysis: biosphere there is added urgency to study vegetation 1. Vegetation is a 'fuzzy' system, it must be treated as processes and dynamics in order to understand their role such at the set level, where the idea of conceptualized in regulating the water, oxygen and the carbon cycles, in patterns must drive the research design. relation to global warming and ozone layer depletion. It 2. Vegetation cannot be seen only in the perspective of a is well known that ecology was developed first in vegeta traditional taxonomy based on the species concept; tion studies (see Acot 1989) but after an active period character sets of ecological value must enter into marked by intensive phytoclimatic and synecological consideration and a hierarchical analysis of patterns studies, vegetation science entered in a rather dormant and processes should be the basis of comparisons. period. Other ecological disciplines such as animal popu 3.

NUMERICAL SYNTAXONOMY

Springer Science & Business Media Proceedings of part of the Symposium `Numerical Syntaxonomy and Syndynamics' held in Unovce near Galanta, Slovakia, May 18-23, 1987

CLASSIFICATION AND ORDINATION

SYMPOSIUM ON ADVANCES IN VEGETATION SCIENCE, NIJMEGEN, THE NETHERLANDS, MAY 1979

Springer Science & Business Media Eddy V AN DER MAAREL This volume is the first of two volumes covering the Sym computer programmes for the rapid clustering and ordina posium 'Advances in vegetation science', which was held at tion of very large sets of rel eves and for (subsequent) table Nijmegen, The Netherlands, from 15-19 May 1979. This rearrangement (this volume as well as the book Data symposium was organized on behalf of the Working Group Processing in Phytosociology contain various new pro for Data-Processing of the International Society for Vege grams). What we do not have is a manual in which the tation Science. After this group held its final meeting two apparently successful methods are compared and applied years earlier it decided to continue its activities, but within a to some data-sets. H. Lieth, editor-in-chief of a new Junk wider scope. Most members of the Group felt that the series 'Tasks for vegetation science' already suggested to original aim, i. e. the introduction of data-processing and produce such a manual in this series. multivariate methods for use in the systematic description The present volume contains the texts of the lectures and of plant communities, was more or less fulfilled. The book most of the poster demonstrations of the first three sessions Data -Processing in Phytosociology, largely based on papers of the Symposium, dealing with classification and ordina in Vegetatio, edited by E. van der Maarel, L. Orloci & S.

INFORMATION ANALYSIS OF VEGETATION DATA

Springer Information analysis, a popular subject among vegetation ecologists not too many years ago, is revisited in this short monograph. The overview provided and the systematic presentation of ideas and algorithms should interest data analysts with backgrounds in this or other fields of natural science where the question of classifi cation is addressed. The text gives the detailed descriptions and the listings of the computer programs. The authors were recipients of grant support from the Italian Consiglio Nazionale delle Ricerche "Gruppo Biologia Naturalistica" (E. Feoli) and the Canadian Na tional Science and Engineering Research Council (L. Orloci) during completion of the project. The respective institutions of the University of Western Ontario and the University of Trieste provided facilities and computer time. Mrs. Stefani Tichbourne (London) typed the manuscript, Mr. Aulo Zampar (Trieste) gave computing assis tance and Mr. Furio Poropat (Trieste) translated some programs. We are most grateful to them. E. Feoli M. Lagonegro L.

DATA ANALYSIS IN VEGETATION ECOLOGY, 3RD EDITION

CABI The 3rd edition of this popular textbook introduces the reader to the investigation of vegetation systems with an emphasis on data analysis. The book succinctly illustrates the various paths leading to high quality data suitable for pattern recognition, pattern testing, static and dynamic modelling and model testing including spatial and temporal aspects of ecosystems. Step-by-step introductions using small examples lead to more demanding approaches illustrated by real world examples aimed at explaining interpretations. All data sets and examples described in the book are available online and are written using the freely available statistical package R. This book will be of particular value to beginning graduate students and postdoctoral researchers of vegetation ecology, ecological data analysis, and ecological modelling, and experienced researchers needing a guide to new methods. A completely revised and updated edition of this popular introduction to data analysis in vegetation ecology. Includes practical step-by-step examples using the freely available statistical package R. Complex concepts and operations are explained using clear illustrations and case studies relating to real world phenomena. Emphasizes method selection rather than just giving a set of recipes.

COENOSES

PLANT LIFE OF THE DOLOMITES

VEGETATION STRUCTURE AND ECOLOGY

Springer Science & Business Media The landscape and vegetation of the Dolomites have characteristics that are very particular. Some 2300 species live here, about a fifth of the flora in Europe as a whole. This book depicts what the plant cover of the Dolomites is composed of, how it was formed, and what future evolution may bring. The data presented is based on the authors' combined botanical research, which consists of thousands of surveys throughout the entire region of the Dolomites. To explain the vegetation, 106 plant communities are described in detailed datasheets. Biological, geological, climatic and physical-chemical parameters are given for each plant community, including a description of the habitat, the indicator species, the floristic composition, distribution, conservation, and alteration risks, as well as a distribution map and a photo of the association. The associations are grouped into habitats, such as the human habitat, natural forests and meadows on the valley floor, the coniferous forest belt, screes, alpine vegetation on granite, porphyry, and volcanic rock, as well as on dolomite and limestones. In closing, the authors make a case for using the scientific information provided in the book for the conservation of the Dolomites, the heritage of all humanity. Additional in-depth analysis will be presented in the supplementary volumes "Plant Life of the Dolomites: Vegetation Tables" and "Plant Life of the Dolomites: Atlas of Flora."

PERSPECTIVES ON INTEGRATED COASTAL ZONE MANAGEMENT

Springer Science & Business Media All coastal areas are facing a growing range of stresses and shocks, the scale of which now poses threats to the resilience of both human and environmental coastal systems. Responsible agencies are seeking better ways of managing the causes and consequences of the environmental change process in coastal zones. This volume discusses the basic principles underpinning a more integrated approach to coastal management and highlights the obstacles that may be met in practice in both developed and developing countries. Successful strategies will have to encompass all the elements of management, from planning and design through financing and implementation, as highlighted in this book.

THE SPATIAL DISTRIBUTION OF MICROBES IN THE ENVIRONMENT

Springer Science & Business Media This volume highlights recent advances that have contributed to our understanding of spatial patterns and scale issues in microbial ecology. The book brings together research conducted at a range of spatial scales (from μm to km) and in a variety of different types of environments. These topics are addressed in a quantitative manner, and a primer on statistical methods is included. In soil ecosystems, both bacteria and fungi are discussed.

ARID LAND ECOSYSTEMS: VOLUME 1

STRUCTURE, FUNCTIONING AND MANAGEMENT

CUP Archive This comprehensive account of arid-land ecosystems will be of importance to university teachers and professional ecologists throughout the world.

COMPUTER ASSISTED VEGETATION ANALYSIS

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GLOBAL CHANGE AND PROTECTED AREAS

Springer Science & Business Media High mountains can be considered as particularly appropriate environments to detect effects of climate change on natural biocoenoses in a global scale for the following reasons: Firstly, ecosystems at the I- temperature limits of plant life are generally thought to be especially sensitive to climate change [1][2][3]. An already ongoing upward shift of vascular plants at high summits in the Alps, determined by the Austrian IGBP-research [4][5][6][7][8], is most likely a response to the atmospheric warming since the 19th century. Secondly, high mountains still comprise the most natural ecosystems in many countries, being largely untouched by human settlements and agricultural influences, Therefore, climatic effects on ecosystems can be studied without masking effects from human land use. Thirdly, high mountain ranges are present in virtually every major zoniobiome of the earth. The research initiative GLORIA aims to establish an urgently needed global monitoring network, by using high mountain ecosystems as sensitive indicators, as required in the "IGBP-Mountain Workplan" [9]. Moreover, a deeper understanding of assemblage mechanisms and assemblage processes in vegetation patterns as a contribution to ecological theory can be expected. This paper gives a short general overview about GLORIA and a first outline about the concept, method, and some few results of the "Multi Summit-Approach", one of the basic intentions within the proposed network. It aims to encourage the involvement of high mountain researchers and research co-ordinators in a detailed discussion of the proposed research activities and in a co-operation within the planned global monitoring network.

CARABID BEETLES: ECOLOGY AND EVOLUTION

Springer Science & Business Media The Carabidae form one of the largest and best studied families of insects, occurring in nearly every terrestrial habitat. The contributions included in this book cover a broad spectrum of recent research into this beetle family, with an emphasis on various aspects of ecology and evolution. They deal both with individual carabid species, for example in studies on population and reproductive biology or life history in general, and with ground beetle communities, as exemplified in papers treating assemblages in natural habitats, on agricultural land and in forests. Disciplines range from biogeography and faunistics, over morphology, taxonomy and phylogenetics, ecophysiology and functional ecology, to population, community, conservation and landscape ecology. This volume is the result of the 8th European Carabidologists' Meeting, 2nd International Symposium of Carabidology, September 1-4, 1992, Belgium.

MULTIVARIATE ANALYSIS OF ECOLOGICAL DATA USING CANOCO

Cambridge University Press Ordination, experimental design, gradient analysis, permutation, similarity.

MULTIVARIATE ANALYSIS IN VEGETATION RESEARCH

Springer

VEGETATION ECOLOGY

John Wiley & Sons Additional resources for this book can be found at:

ahref="http://www.wiley.com/go/vandermaarefranklin/vegetationecology"www.wiley.com/go/vandermaarefranklin/vegetationecology/a. Vegetation Ecology, 2nd Edition is a comprehensive, integrated account of plant communities and their environments. Written by leading experts in their field from four continents, thesecond edition of this book: covers the composition, structure, ecology, dynamics, diversity, biotic interactions and distribution of plant communities, with an emphasis on functional adaptations; reviews modern developments in vegetation ecology in ahistorical perspective; presents a coherent view on vegetation ecology while integrating population ecology, dispersal biology, soil biology, ecosystem ecology and global change studies; tackles applied aspects of vegetation ecology, including management of communities and invasive species; includes new chapters addressing the classification and mapping of vegetation, and the significance of plant functional types Vegetation Ecology, 2nd Edition is aimed at advanced undergraduates, graduates and researchers and teachers in plant ecology, geography, forestry and nature conservation. Vegetation Ecology takes an integrated, multidisciplinary approach and will be welcomed as an essential reference for plant ecologists the world over.

GEOMORPHOLOGICAL MAPPING

METHODS AND APPLICATIONS

Elsevier Geomorphological Mapping: a professional handbook of techniques and applications is a new book targeted at academics and practitioners who use, or wish to utilise, geomorphological mapping within their work. Synthesising for the first time an historical perspective to geomorphological mapping, field based and digital tools and techniques for mapping and an extensive array of case studies from academics and professionals active in the area. Those active in geomorphology, engineering geology, reinsurance, Environmental Impact Assessors, and allied areas, will find the text of immense value. Growth of interest in geomorphological mapping and currently no texts comprehensively cover this topic Extensive case studies that will appeal to professionals, academics and students (with extensive use of diagrams, potentially colour plates) Brings together material on digital mapping (GIS and remote sensing), cartography and data sources with a focus on modern technologies (including GIS, remote sensing and digital terrain analysis) Provides readers with summaries of current advances in methodological/technical aspects Accompanied by electronic resources for digital mapping

APPROACHING COMPLEX DISEASES

NETWORK-BASED PHARMACOLOGY AND SYSTEMS APPROACH IN BIO-MEDICINE

Springer Nature This volume - for pharmacologists, systems biologists, philosophers and historians of medicine - points to investigate new avenues in pharmacology research, by providing a full assessment of the premises underlying a radical shift in the pharmacology paradigm. The pharmaceutical industry is currently facing unparalleled challenges in developing innovative drugs. While drug-developing scientists in the 1990s mostly welcomed the transformation into a target-based approach, two decades of experience shows that this model is failing to boost both drug discovery and efficiency. Selected targets were often not druggable and with poor disease linkage, leading to either high toxicity or poor efficacy. Therefore, a profound rethinking of the current paradigm is needed. Advances in systems biology are revealing a phenotypic robustness and a network structure that strongly suggest that exquisitely selective compounds, compared with multitarget drugs, may exhibit lower than desired clinical efficacy. This appreciation of the role of polypharmacology has significant implications for tackling the two major sources of attrition in drug development, efficacy and toxicity. Integrating network biology and polypharmacology holds the promise of expanding the current opportunity space for druggable targets.

THE SPECIES-AREA RELATIONSHIP

THEORY AND APPLICATION

Cambridge University Press Provides a comprehensive synthesis of a fundamental phenomenon, the species-area relationship, addressing theory, evidence and application.

RETIREMENT MIGRATION

PARADOXES OF AGEING

Routledge The book is the first ethnographic study of international retirement migration and offers a sometimes surprising picture of the potentials, seductions and limitations of the lifestyles. People envision retirement as freedom from responsibilities through shedding the restrictive shackles of their former selves in a time of life dedicated to fun, friendship, healthy activity and individual fulfillment. However, as Oliver documents, a number of contradictions underpin the pursuits of such a lifestyle. She shows how retirees must balance time-use to achieve both freedoms and busy social schedules -- their activities, their relationships, and their cultural identities -- to balance both the security of nationality with the discovery of the new. Retirement Migration gives a critical insight into the new ways aging identities are experienced by a growing number of older people in Western societies today.

HOT DESERTS AND ARID SHRUBLANDS

Elsevier Science Limited This two-volume work presents an authoritative world-wide view of our knowledge about, and understanding of, hot-desert ecosystems. This includes some semi-arid and arid areas, as well as deserts in the strict sense. The hot deserts are distinguished from the temperate deserts (which form the subject of another volume in the series) by the virtual absence of snowfall, even though frosts may occur. For each major hot-desert region, expert authors have summarized existing knowledge according to a general outline. This includes descriptions of the ecosystem components (climate, soil, flora and fauna), and discussion of interaction between components and overall ecosystem functioning. The information from the regional chapters has then been integrated into a world-wide view in the "synthesis" chapters. Because of its length, the volume is published in two parts. The first volume includes the general synthesis chapters, and regional descriptions of the hot deserts of America and Australia, while the second volume covers the hot deserts of Asia and Africa.

ECOLOGY AND BIOGEOGRAPHY OF MEDITERRANEAN ECOSYSTEMS IN CHILE, CALIFORNIA, AND AUSTRALIA

Springer Science & Business Media Mediterranean-type ecosystems have provided ecologists with some of the most scientifically-rewarding opportunities to formulate and evaluate hypotheses about large and small-scale ecological phenomena. Comparison of mediterranean-type climate ecosystems in different parts of the world has not only permitted a strong test for ecological convergence, but also

critical understanding of key ecophysiological and population processes.

FOREST STAND DYNAMICS

John Wiley & Sons Incorporated Comprehensive book describes the various growth patterns of forests. The purpose is to help silviculturalists and forest managers understand and anticipate how forests grow and respond to intentional manipulations and natural disasters.

VEGETATION DYNAMICS

Springer Science & Business Media During the International Botanical Congress in Edinburgh, 1964, Mrs. I. M. WEISBACH-J UNK of The Hague discussed a plan for preparation by her publishing company (Dr. W. Junk b.v.) of an international Handbook of Vegetation Science. She proposed a series that should give a comprehensive survey of the varied directions within this science, and their achievements to date as well as their objectives for the future. The challenge of such an enterprise, and its evident value for the further development of vegetation research, induced the undersigned after some consideration to accept the offer of the honorable but also burdensome task of General Editor. The decision was encouraged by a well formulated and detailed outline for the Handbook worked out by the Dutch phytosociologists J. J. BARKMAN and V. WESTHOFF. A circle of scholars from numerous countries was invited by the Dr. Junk Publishing Company to The Hague in January 1966 to draw up a list of editors and contributors for the parts of the Handbook. The outline and list have served since for the organization of the Handbook, with no need for major change. The different burdens of editors and authors have compelled quite different timings for completion of the individual sections.

IMAGING SPECTROMETRY

BASIC PRINCIPLES AND PROSPECTIVE APPLICATIONS

Springer Science & Business Media A significant step forward in the world of earth observation was made with the development of imaging spectrometry. Imaging spectrometers measure reflected solar radiance from the earth in many narrow spectral bands. Such a spectroscopical imaging system is capable of detecting subtle absorption bands in the reflectance spectra and measure the reflectance spectra of various objects with a very high accuracy. As a result, imaging spectrometry enables a better identification of objects at the earth surface and a better quantification of the object properties than can be achieved by traditional earth observation sensors such as Landsat TM and SPOT. The various chapters in the book present the concepts of imaging spectrometry by discussing the underlying physics and the analytical image processing techniques. The second part of the book presents in detail a wide variety of applications of these new techniques ranging from mineral identification, mapping of expansive soils, land degradation, agricultural crops, natural vegetation and surface water quality. Additional information on extras.springer.com Sample hyperspectral remote sensing data sets and ENVI viewing software (FreeLook) are available on <http://extras.springer.com>

THE COLLECTION OF ANTIQUITIES OF THE AMERICAN ACADEMY IN ROME

University of Michigan Press The foundation of the American Academy in Rome dates back more than one hundred years to the early decades of the last century. Over the years, the Academy has acquired a study collection of material goods from antiquity, including coins, statues and figurines, lamps, stucco and other architectural fragments, jewelry, and inscriptions. While most are Roman in origin, some pieces are Greek or Etruscan. Some were gifts, others come from long-ago excavations, a few were bought. The Collection of Antiquities of the American Academy in Rome, the latest addition to the Supplements to the Memoirs of the American Academy in Rome series, focuses on highlights of the collection.

CLUSTERING ALGORITHMS

John Wiley & Sons Shows how Galileo, Newton, and Einstein tried to explain gravity. Discusses the concept of microgravity and NASA's research on gravity and microgravity.

ART IN ROME IN THE EIGHTEENTH CENTURY

Philadelphia Museum (PA) "Caught between the Theatricality of the Baroque and the acute sensibility of Romanticism, art in Rome in the eighteenth century has long been a neglected area of study." "The grand scale and spectacular diversity of the period are comprehensively captured for the first time in this definitive history of the period, produced to accompany a major U.S. exhibition organized by the Philadelphia Museum of Art and The Museum of Fine Arts, Houston, and documenting the work of over 150 artists. With over 450 illustrations, and texts by an outstanding array of experts from around the world, Art in Rome in the Eighteenth Century provides a massively authoritative survey of a fascinating era."--BOOK JACKET.Title Summary field provided by Blackwell North America, Inc. All Rights Reserved

A PRACTICAL GUIDE TO ECOLOGICAL MODELLING

USING R AS A SIMULATION PLATFORM

Springer Science & Business Media Mathematical modelling is an essential tool in present-day ecological research. Yet for many ecologists it is still problematic to apply modelling in their research. In our experience, the major problem is at the conceptual level: proper understanding of what a model is, how ecological relations can be translated consistently into mathematical equations, how models are solved, steady states calculated and interpreted. Many textbooks jump over these conceptual hurdles to dive into detailed formulations or the mathematics of solution. This book attempts to fill that gap. It introduces essential concepts for mathematical modelling, explains the mathematics behind the methods, and helps readers to implement models and obtain hands-on experience. Throughout the book, emphasis is laid on how to translate ecological questions into interpretable models in a practical way. The book aims to be an introductory textbook at the undergraduate-graduate level, but will also be useful to seduce experienced ecologists into the world of modelling. The range of ecological models treated is wide, from Lotka-Volterra type of principle-seeking models to environmental or ecosystem models, and including matrix models, lattice models and sequential decision models. All chapters contain a concise introduction into the theory, worked-out examples and exercises. All examples are implemented in the open-source package R, thus taking away problems of software availability for use of the book. All code used in the book is available on a dedicated website.

EVOLUTION OF DESERT BIOTA

University of Texas Press Written by specialists in the field, the papers in this volume explore evolution of animals and plants on the deserts of North America, South America, and Australia. Together, the articles constitute a complete survey of the geological history of the deserts of three continents, the evolution of the animals and plants of those deserts, and their adaptations to the environments in which they live. The first paper, by Otto T. Solbrig, discusses the flora of the South American temperate and semidesert regions, citing numerous genera and reasons that they are found in the different areas. John S. Beard uses the same approach in his discussion of the evolution of Australian desert plants and focuses on western Australian areas. Guillermo Sarmiento appraises the evolution of arid vegetation in tropical America, including the Lesser Antilles and the Coast Range of Venezuela and Colombia. A. R. Main surveys the adaptation of Australian vertebrates to desert conditions and gives examples of how various species of birds, reptiles, and amphibians adapt to their environment in order for the greatest number to survive. James A. MacMahon designates specific communities in the Mojave, Sonoran, and Chihuahuan deserts and discusses the similarity of species of the North American desert mammal faunas found there, while Bobbi S. Low focuses on the evolution of amphibian life histories in the desert and compiles a lengthy table of amphibia comparing egg size, habitat, number of eggs per clutch, and so forth. Finally, W. Frank Blair treats adaptation of anurans to equivalent desert scrub of North and South America and cites various species of frogs and toads that are found in similar areas. The volume also includes an introduction by the editor and an index. Evolution of Desert Biota is the result of a symposium held during the First International Congress of Systematic and Evolutionary Biology in Boulder, Colorado; in August 1973.

PEDODIVERSITY

CRC Press Soil diversity (pedodiversity) is part of our natural and cultural heritage. The preservation of the pedosphere is essential for the protection of the biosphere and the Earth's systems, the regulation of climate, and for world food security. In this book, reputed international experts discuss the state of the art of pedodiversity analysis—analyzing the relationships among biodiversity, pedodiversity, landform diversity, lithodiversity, and land use diversity. The first of its kind, the book is intended to be a combined handbook, historical account of pedodiversity research, and essay on its future challenges.

CURRENT TRENDS IN HUMAN ECOLOGY

Cambridge Scholars Pub Demonstrates human ecology as an exercise of interdisciplinarity at the crossroads of humans and the environment. This book shows examples of different branches of human ecology as feasible alternatives to understand the interactions of human culture and behaviour with the natural environment from different parts of the world

CLASSIFICATION AND ORDINATION

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Springer Eddy VAN DER MAAREL This volume is the first of two volumes covering the Sym computer programmes for the rapid clustering and ordination 'Advances in vegetation science', which was held at the meeting of very large sets of relevés and for (subsequent) table Nijmegen, The Netherlands, from 15-19 May 1979. This rearrangement (this volume as well as the book Data symposium was organized on behalf of the Working Group Processing in Phytosociology contain various new procedures for Data-Processing of the International Society for Vegetation Science). What we do not have is a manual in which the tation Science. After this group held its final meeting two apparently successful methods are compared and applied years earlier it decided to continue its activities, but within a to some data-sets. H. Lieth, editor-in-chief of a new Junk wider scope. Most members of the Group felt that the series 'Tasks for vegetation science' already suggested to original aim, i. e. the introduction of data-processing and produce such a manual in this series. multivariate methods for use in the systematic description The present volume contains the texts of the lectures and of plant communities, was more or less fulfilled. The book most of the poster demonstrations of the first three sessions Data-Processing in Phytosociology, largely based on papers of the Symposium, dealing with classification and ordination in Vegetation, edited by E. van der Maarel, L. Orloci & S.

ANALYSIS OF TEMPERATE FOREST ECOSYSTEMS

Springer Science & Business Media A series of concise books, each by one or several authors, will provide prompt, world-wide information on approaches to analyzing ecological systems and their

interacting parts. Syntheses of results in turn will illustrate the effectiveness, and the limitations, of current knowledge. This series aims to help overcome the fragmentation of our understanding about natural and managed landscapes and water- about man and the many other organisms which depend on these environments. We may sometimes seem complacent that our environment has supported many civilizations fairly well - better in some parts of the Earth than in others. Modern technology has mastered some difficulties but creates new ones faster than we anticipate. Pressures of human and other animal populations now highlight complex ecological problems of practical importance and theoretical scientific interest. In every climatic-biotic zone, changes in plants, soils, waters, air and other resources which support life are accelerating. Such changes engulf not only regions already crowded or exploited. They spill over into more natural areas where contrasting choices for future use should remain open to our descendants-where Nature's own balances and imbalances can be interpreted by imaginative research, and need to be.

THE POPE OF PHYSICS

ENRICO FERMI AND THE BIRTH OF THE ATOMIC AGE

Henry Holt and Company Enrico Fermi is unquestionably among the greats of the world's physicists, the most famous Italian scientist since Galileo. Called the Pope by his peers, he was regarded as infallible in his instincts and research. His discoveries changed our world; they led to weapons of mass destruction and conversely to life-saving medical interventions. This unassuming man struggled with issues relevant today, such as the threat of nuclear annihilation and the relationship of science to politics. Fleeing Fascism and anti-Semitism, Fermi became a leading figure in America's most secret project: building the atomic bomb. The last physicist who mastered all branches of the discipline, Fermi was a rare mixture of theorist and experimentalist. His rich legacy encompasses key advances in fields as diverse as cosmic rays, nuclear technology, and early computers. In their revealing book, *The Pope of Physics*, Gino Segré and Bettina Hoerlin bring this scientific visionary to life. An examination of the human dramas that touched Fermi's life as well as a thrilling history of scientific innovation in the twentieth century, this is the comprehensive biography that Fermi deserves.

THE ITALIANS: HISTORY, ART, AND THE GENIUS OF A PEOPLE

Franklin Classics Trade Press This work has been selected by scholars as being culturally important and is part of the knowledge base of civilization as we know it. This work is in the public domain in the United States of America, and possibly other nations. Within the United States, you may freely copy and distribute this work, as no entity (individual or corporate) has a copyright on the body of the work. Scholars believe, and we concur, that this work is important enough to be preserved, reproduced, and made generally available to the public. To ensure a quality reading experience, this work has been proofread and republished using a format that seamlessly blends the original graphical elements with text in an easy-to-read typeface. We appreciate your support of the preservation process, and thank you for being an important part of keeping this knowledge alive and relevant.

ENCYCLOPEDIA OF THE HISTORY OF CLASSICAL ARCHAEOLOGY

Routledge With 1,125 entries and 170 contributors, this is the first encyclopedia on the history of classical archaeology. It focuses on Greek and Roman material, but also covers the prehistoric and semi-historical cultures of the Bronze Age Aegean, the Etruscans, and manifestations of Greek and Roman culture in Europe and Asia Minor. The *Encyclopedia of the History of Classical Archaeology* includes entries on individuals whose activities influenced the knowledge of sites and monuments in their own time; articles on famous monuments and sites as seen, changed, and interpreted through time; and entries on major works of art excavated from the Renaissance to the present day as well as works known in the Middle Ages. As the definitive source on a comparatively new discipline - the history of archaeology - these finely illustrated volumes will be useful to students and scholars in archaeology, the classics, history, topography, and art and architectural history.

ORDINATION AND CLASSIFICATION OF COMMUNITIES

Springer During the International Botanical Congress in Edinburgh, 1964, Mrs. I. M. WEISBACH-JUNK of The Hague discussed a plan for preparation by her publishing company (Dr. W. Junk B.V.) of an international *Handbook of Vegetation Science*. She proposed a series that should give a comprehensive survey of the varied directions within this science, and their achievements to date as well as their objectives for the future. The challenge of such an enterprise, and its evident value for the further development of vegetation research, induced the undersigned after some consideration to accept the offer of the honorable but also burdensome task of General Editor. The decision was encouraged by a well formulated and detailed outline for the *Handbook* worked out by the Dutch phytosociologists J. J. BARKMAN and V. WESTHOFF. A circle of scholars from numerous countries was invited by the Dr. Junk Publishing Company to The Hague in January 1966 to draw up a list of editors and contributors for the parts of the *Handbook*. The outline and list have served since for the organization of the *Handbook*, with no need for major change. The different burdens of editors and authors have compelled quite different timings for completion of the individual sections.

SYSTEMS ANALYSIS AND SIMULATION IN ECOLOGY

Elsevier *Systems Analysis and Simulation in Ecology, Volume I*, is a book of ecology in transition from a "soft" science, synecology, to a "hard" science, systems ecology. It is an enthusiastic and optimistic statement about the fundamental adaptability of the scientific mechanism to newly appreciated truths of existence. It documents, in ecological science, a move away from the explanatory or cognitive criterion toward the predictive criterion, a hard one with the potential of leading ultimately to optimal design and control of ecosystems. The book is organized into three parts. Part I is an overview of some of the methods and rationales for ecological systems modeling for the purposes of simulation and systems analysis. It provides an elementary introduction to the use of analog and digital computers for simulation and a rationale for ecological model-building. Part II illustrates three different approaches to population modeling. These include a mathematical analysis of microbial (*Chlorella*, *Selenastrum*) dynamics in both continuous and batch cultures; and a bioenergetics study of the terrestrial isopod *Armadillidium*, utilizing concepts from control theory and the transfer function technique of classical dynamic analysis. Part III brings together a group of papers describing various aspects and philosophies of ecological simulation. These include common problems in ecosystem simulation and the question whether or not some of the newer methods of systems ecology might not be used in connection with some of the older data and observations of traditional synecology.