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Evolution As Entropy - Daniel R. Brooks 1988-10-15
This second edition in just two years offers a considerably revised second chapter, in which information behavior replaces analogies to purely physical systems, as well as practical applications of the authors' theory. Attention is also given to a hierarchical theory of ecosystem behavior, taking note of constraints on local ecosystem members resul.
Key to Oceanographic Records Documentation - 1976

Inferring Phylogenies - Joseph Felsenstein 2004-01
Phylogenies, or evolutionary trees, are the basic structures necessary to think about and analyze differences between species. Statistical, computational, and algorithmic work in this field has been ongoing for four decades now, and there have been great advances in understanding. Yet no book has summarized this work. Inferring Phylogenies does just that in a single, compact volume. Phylogenies are inferred with various kinds of data. This book concentrates on some of the central ones: discretely coded characters, molecular sequences, gene frequencies, and quantitative traits. Also covered are restriction sites, RAPDs, and microsatellites.
Biometry - Robert R. Sokal 1981-01-01
Data in biology. The handling of data. Descriptive statistics. Introduction to probability distributions: binomial and poisson. The normal probability distribution. Estimation and hypothesis testing. Introduction to analysis of variance. Single classification analysis of variance. Nested analysis of variance. Two-way analysis of variance. Multway analysis of variance. Assumptions of analysis of variance. Linear regression. Correlation. Multiple and curvilinear regression. Analysis of frequencies. Miscellaneous methods. Mathematical appendix. A package of statistical computer programs.
Ecological Systems - Rik Leemans 2012-12-12
Earth is home to an estimated 8 million animal species, 600,000 fungi, 300,000 plants, and an undetermined number of microbial species. Of these animal, fungal, and plant species, an estimated 75% have yet to be identified. Moreover, the interactions between these species and their physical environment are known to an even lesser degree. At the same time, the earth's biota faces the prospect of climate change, which may manifest slowly or extremely rapidly, as well as a human population set to grow by two billion by 2045 from the current seven billion. Given these major ecological changes, we cannot wait for a complete biota data set before assessing, planning, and acting to preserve the ecological balance of the earth. This book provides comprehensive coverage of the scientific and engineering basis of the systems ecology of the earth in 15 detailed, peer-reviewed entries written for a broad audience of undergraduate and graduate students as well as practicing professionals in government, academia, and industry. The methodology presented aims at identifying key interactions and environmental effects, and enabling a systems-level understanding even with our present state of factual knowledge.
The Analysis of Biological Data - Michael C. Whitlock 2019-11-22
The Analysis of Biological Data provides students with a practical foundation of statistics for biology students. Every chapter has several biological or medical examples of key concepts, and each example is prefaced by a substantial description of the biological setting. The emphasis on real and interesting examples carries into the problem sets where students have dozens of practice problems based on real data. The third edition features over 200 new examples and problems. These include new calculation practice problems, which guide the student step by step through the methods, and a greater number of examples and topics come from medical and human health research. Every chapter has

been carefully edited for even greater clarity and ease of use. All the data sets, R scripts for all worked examples in the book, as well as many other teaching resources, are available to qualified instructors (see below).
Ecology - Charles J. Krebs 2001
This best-selling majors ecology book continues to present ecology as a series of problems for readers to critically analyze. No other text presents analytical, quantitative, and statistical ecological information in an equally accessible style. Reflecting the way ecologists actually practice, the book emphasizes the role of experiments in testing ecological ideas and discusses many contemporary and controversial problems related to distribution and abundance. Throughout the book, Krebs thoroughly explains the application of mathematical concepts in ecology while reinforcing these concepts with research references, examples, and interesting end-of-chapter review questions. Thoroughly updated with new examples and references, the book now features a new full-color design and is accompanied by an art CD-ROM for instructors. The field package also includes The Ecology Action Guide, a guide that encourages readers to be environmentally responsible citizens, and a subscription to The Ecology Place (www.ecologyplace.com), a web site and CD-ROM that enables users to become virtual field ecologists by performing experiments such as estimating the number of mice on an imaginary island or restoring prairie land in Iowa. For college instructors and students.
Computing Skills for Biologists - Stefano Allesina 2019-01-15
A concise introduction to key computing skills for biologists While biological data continues to grow exponentially in size and quality, many of today's biologists are not trained adequately in the computing skills necessary for leveraging this information deluge. In Computing Skills for Biologists, Stefano Allesina and Madlen Wilmes present a valuable toolbox for the effective analysis of biological data. Based on the authors' experiences teaching scientific computing at the University of Chicago, this textbook emphasizes the automation of repetitive tasks and the construction of pipelines for data organization, analysis, visualization, and publication. Stressing practice rather than theory, the book's examples and exercises are drawn from actual biological data and solve cogent problems spanning the entire breadth of biological disciplines, including ecology, genetics, microbiology, and molecular biology. Beginners will benefit from the many examples explained step-by-step, while more seasoned researchers will learn how to combine tools to make biological data analysis robust and reproducible. The book uses free software and code that can be run on any platform. Computing Skills for Biologists is ideal for scientists wanting to improve their technical skills and instructors looking to teach the main computing tools essential for biology research in the twenty-first century. Excellent resource for acquiring comprehensive computing skills Both novice and experienced scientists will increase efficiency by building automated and reproducible pipelines for biological data analysis Code examples based on published data spanning the breadth of biological disciplines Detailed solutions provided for exercises in each chapter Extensive companion website
Introduction to Statistical Modelling - Annette J. Dobson 2013-11-11
This book is about generalized linear models as described by NeIder and Wedderburn (1972). This approach provides a unified theoretical and computational framework for the most commonly used statistical methods: regression, analysis of variance and covariance, logistic regression, log-linear models for contingency tables and several more specialized techniques. More advanced expositions of the subject are given by McCullagh and NeIder (1983) and Andersen (1980). The emphasis is on the use of statistical models to investigate substantive

questions rather than to produce mathematical descriptions of the data. Therefore parameter estimation and hypothesis testing are stressed. I have assumed that the reader is familiar with the most commonly used statistical concepts and methods and has some basic knowledge of calculus and matrix algebra. Short numerical examples are used to illustrate the main points. In writing this book I have been helped greatly by the comments and criticism of my students and colleagues, especially Anne Young. However, the choice of material, and the obscurities and errors are my responsibility and I apologize to the reader for any irritation caused by them. For typing the manuscript under difficult conditions I am grateful to Anne McKim, Jan Garnsey, Cath Claydon and Julie Latimer.

Systematics - Ward C. Wheeler 2012-06-14
Systematics: A Course of Lectures is designed for use in anadvanced undergraduate or introductory graduate level course insystematics and is meant to present core systematic concepts andliterature. The book covers topics such as the history ofsystematic thinking and fundamental concepts in the field includingspecies concepts, homology, and hypothesis testing. Analyticalmethods are covered in detail with chapters devoted to sequencealignment, optimality criteria, and methods such as distance,parsimony, maximum likelihood and Bayesian approaches. Trees andtree searching, consensus and super-tree methods, support measures,and other relevant topics are each covered in their own sections. The work is not a bleeding-edge statement or in-depth review ofthe entirety of systematics, but covers the basics as broadly ascould be handled in a one semester course. Most chapters aredesigned to be a single 1.5 hour class, with those on parsimony,likelihood, posterior probability, and tree searching two classes(2 x 1.5 hours).

Introduction to WinBUGS for Ecologists - Marc Kery 2010-07-19
Introduction to WinBUGS for Ecologists introduces applied Bayesian modeling to ecologists using the highly acclaimed, free WinBUGS software. It offers an understanding of statistical models as abstract representations of the various processes that give rise to a data set. Such an understanding is basic to the development of inference models tailored to specific sampling and ecological scenarios. The book begins by presenting the advantages of a Bayesian approach to statistics and introducing the WinBUGS software. It reviews the four most common statistical distributions: the normal, the uniform, the binomial, and the Poisson. It describes the two different kinds of analysis of variance (ANOVA): one-way and two- or multiway. It looks at the general linear model, or ANCOVA, in R and WinBUGS. It introduces generalized linear model (GLM), i.e., the extension of the normal linear model to allow error distributions other than the normal. The GLM is then extended contain additional sources of random variation to become a generalized linear mixed model (GLMM) for a Poisson example and for a binomial example. The final two chapters showcase two fairly novel and nonstandard versions of a GLMM. The first is the site-occupancy model for species distributions; the second is the binomial (or N-) mixture model for estimation and modeling of abundance. Introduction to the essential theories of key models used by ecologists Complete juxtaposition of classical analyses in R and Bayesian analysis of the same models in WinBUGS Provides every detail of R and WinBUGS code required to conduct all analyses Companion Web Appendix that contains all code contained in the book and additional material (including more code and solutions to exercises)

Research Methodology - Ranjit Kumar 2010-11-12
Written specifically for students with no previous experience of research and research methodology, the Third Edition of Research Methodology breaks the process of designing and doing a research project into eight manageable steps and provides plenty of examples throughout to link theory to the practice of doing research. The book contains straightforward, practical guidance on: - Formulating a research question - Ethical considerations - Carrying out a literature review - Choosing a research design - Selecting a sample - Collecting and analysing qualitative and quantitative data - Writing a research report The third edition has been revised and updated to include extended coverage of qualitative research methods in addition to the existing comprehensive coverage of quantitative methods. There are also brand new learning features such as reflective questions throughout the text to help students consolidate their knowledge. The book is essential reading for undergraduate and postgraduate students in the social sciences embarking on qualitative or quantitative research projects.

Geometric Morphometrics for Biologists - Miriam Leah Zelditch 2012-09-24
The first edition of Geometric Morphometrics for Biologists has been the primary resource for teaching modern geometric methods of shape analysis to biologists who have a stronger background in biology than in multivariate statistics and matrix algebra. These geometric methods are appealing to biologists who approach the study of shape from a variety of perspectives, from clinical to evolutionary, because they incorporate the geometry of organisms throughout the data analysis. The second edition of this book retains the emphasis on accessible explanations, and the copious illustrations and examples of the first, updating the treatment of both theory and practice. The second edition represents the current state-of-the-art and adds new examples and summarizes recent literature, as well as provides an overview of new software and step-by-step guidance through details of carrying out the analyses. Contains updated coverage of methods, especially for sampling complex curves and 3D forms and a new chapter on applications of geometric morphometrics to forensics Offers a reorganization of chapters to streamline learning basic concepts Presents detailed instructions for conducting analyses with freely available, easy to use software Provides numerous illustrations, including graphical presentations of important theoretical concepts and demonstrations of alternative approaches to presenting results

Estimating Numbers of Terrestrial Birds - C. John Ralph 2003-06
This book was originally published in 1981 as a publication of the Cooper Ornithological Society and was based on the proceedings of a meeting of biologists and statisticians in Asilomar who gathered to examine the methods and assumptions used in estimating bird numbers. Counting birds has a long tradition. It is the currency of many ornithological studies. Bird counts have been seminal in our knowledge of bird migration, competition, ecology, population dynamics, environmental adaptation, impact of human alterations and island biogeography. Interest in estimating bird numbers remains high today but is often plagued by unasked or unanswered questions regarding sampling methods and treatment of the results. This book recorded the outcome of a meeting held to address these and other questions. It led to better understanding of what can and cannot be done with datasets. This volume remains a primary source of information on censusing of birds and other animals, and is frequently quoted in the primary literature of today. Since this volume went out of print some six years ago, demand has markedly increased for copies which are essentially unavailable, attesting to its currency today. C. John Ralph, received his Bachelors from the University of California, Berkeley and his doctorate from The Johns Hopkins University. Most of his early research was on bird migration and orientation. After a stint teaching at Dickinson College in Pennsylvania, he moved to Hawaii in 1976 where he began work on endangered forest birds for the Forest Service as a Research Ecologist. In 1981 he and his family moved to Arcata to join the Forest Service's Redwood Sciences Laboratory. One of his principal research topics there has been on an old-growth dependent bird, the Marbled Murrelet, involving extensive research from Alaska to California. His other principal work is on landbird monitoring, especially involving census and constant effort mist netting. Since 1994 he has directed research at a bird monitoring station in Costa Rica, now one of the longest running stations in Latin America. Beginning in 1980 he conducted research on an island off New Zealand involving monitoring and reintroduction of native birds. He has published more than 150 scientific articles and edited several books on bird monitoring and the Marbled Murrelet.

How to Do Ecology - Richard Karban 2014-07-21
The essential guide to successful ecological research—now updated and expanded Most books and courses in ecology cover facts and concepts but don't explain how to actually do ecological research. How to Do Ecology provides nuts-and-bolts advice on organizing and conducting a successful research program. This one-of-a-kind book explains how to choose a research question and answer it through manipulative experiments and systematic observations. Because science is a social endeavor, the book provides strategies for working with other people, including professors and collaborators. It suggests effective ways to communicate your findings in the form of journal articles, oral presentations, posters, and grant and research proposals. The book also includes ideas to help you identify your goals, organize a season of fieldwork, and deal with negative results. In short, it makes explicit many of the unspoken assumptions behind doing good research in ecology and provides an invaluable resource for meaningful conversations between ecologists. This second edition of How to Do Ecology features new sections on conducting and analyzing observational surveys, job hunting, and becoming a more creative researcher, as well as updated sections on statistical analyses.

Aquatic Biodiversity - Koen Martens 2012-12-06
In this age of increased fundamental and applied research on biodiversity, no single volume was as yet devoted to the various temporal and spatial aspects of aquatic biodiversity. The present book is published in honour of Professor Henri Dumont (Ghent, Belgium) at the occasion of his retirement as Editor-in-Chief of Hydrobiologia. The volume presents a selection of contributions on aquatic biodiversity, written by colleagues from the editorial board, fellow editors of aquatic journals and former students and collaborators. Contributions deal with a wide spectrum of topics related to aquatic biodiversity and cover fields such as actual- and palaeolimnology, taxonomy, and fundamental and applied limnology. Even reconnaissance chapters on management and cultural impact of water bodies are included. The book combines state-of-the-art contributions in aquatic sciences.

Morphological Integration - Everett C. Olson 1999-10
Despite recent advances in genetics, development, anatomy, systematics, and morphometrics, the synthesis of ideas and research agenda put forth in the classic Morphological Integration remains remarkably fresh, timely, and relevant. Pioneers in reexamining morphology, Everett Olson and Robert Miller were among the first to explore the concept of the integrated organism in both living and extinct populations. In a new foreword and afterword, biologists Barry Chernoff and Paul Magwene summarize the landmark achievements made by Olson and Miller and bring matters discussed in the book up to date, suggest new methods, and accentuate the importance of continued research in morphological integration. Everett C. Olson was a professor at the University of Chicago and at the University of California, Los Angeles. He was a former president of the Society of Vertebrate Paleontology. Robert L. Miller was associate professor of geology at the University of Chicago, associate scientist in marine geology at the Woods Hole Oceanographic Institution, and a member of the board of editors of the Journal of Geology.

Cause and Correlation in Biology - Bill Shipley 2002-08
Explores the relationship between correlation and causation using a series of novel statistical methods.

Ecological Models and Data in R - Benjamin M. Bolker 2008-07-21
Introduction and background; Exploratory data analysis and graphics; Deterministic functions for ecological modeling; Probability and stochastic distributions for ecological modeling; Stochatsic simulation and power analysis; Likelihood and all that; Optimization and all that; Likelihood examples; Standar statistics revisited; Modeling variance; Dynamic models.

Statistical Tables - F. James Rohlf 1995
This separate compendium of tables used with Sokal/Rohlf, Biometry, Third Edition, eliminates the inconvenience of having to turn back and forth within the text to refer to data. It can also be used with other texts, or as an independent research resource.

NTSYS-pc - F.J. Rohlf 1992
What is NTSYS-pc? Modes of operation. Command line options. Configuration window and file. Preparation of input data files. Description of general programs. Description of similarity and dissimilarity programs. Description of clustering programs. Description of ordination programs. Graphics programs. Typical applications. Installation. Graphics.

Cluster Analysis - Brian S. Everitt 1977

Statistical Methods in Water Resources - D.R. Helsel 1993-03-03
Data on water quality and other environmental issues are being collected at an ever-increasing rate. In the past, however, the techniques used by scientists to interpret this data have not progressed as quickly. This is a book of modern statistical methods for analysis of practical problems in water quality and water resources. The last fifteen years have seen major advances in the fields of exploratory data analysis (EDA) and robust statistical methods. The 'real-life' characteristics of environmental data tend to drive analysis towards the use of these methods. These advances are presented in a practical and relevant format. Alternate methods are compared, highlighting the strengths and weaknesses of each as applied to environmental data. Techniques for trend analysis and dealing with water below the detection limit are topics covered, which are of great interest to consultants in water-quality and hydrology, scientists in state, provincial and federal water resources, and geological survey agencies. The practising water resources scientist will find the worked examples using actual field data from case studies of environmental problems, of real value. Exercises at the end of each chapter enable the mechanics of the methodological process to be fully understood, with data sets included on diskette for easy use. The result is a book that is both up-to-date and immediately relevant to ongoing work in the environmental and water sciences.

Computer Programs in Marine Science - 1976

Spreadsheet Exercises in Ecology and Evolution - Therese Marie Donovan 2002
The exercises in this unique book allow students to use spreadsheet programs such as Microsoftr Excel to create working population models. The book contains basic spreadsheet exercises that explicate the concepts of statistical distributions, hypothesis testing and power, sampling techniques, and Leslie matrices. It contains exercises for modeling such crucial factors as population growth, life histories, reproductive success, demographic stochasticity, Hardy-Weinberg equilibrium, metapopulation dynamics, predator-prey interactions (Lotka-Volterra models), and many others. Building models using these exercises gives students "hands-on" information about what parameters are important in each model, how different parameters relate to each other, and how changing the parameters affects outcomes. The "mystery" of the mathematics dissolves as the spreadsheets produce tangible graphic results. Each exercise grew from hands-on use in the authors' classrooms. Each begins with a list of objectives, background information that includes standard mathematical formulae, and annotated step-by-step instructions for using this information to create a working model. Students then examine how changing the parameters affects model outcomes and, through a set of guided questions, are challenged to develop their models further. In the process, they become proficient with many of the functions available on spreadsheet programs and learn to write and use complex but useful macros. Spreadsheet Exercises in Ecology and Evolution can be used independently as the basis of a course in quantitative ecology and its applications or as an invaluable supplement to undergraduate textbooks in ecology, population biology, evolution, and population genetics.

Analysis of Variance and Covariance - C. Patrick Doncaster 2007-08-30
Analysis of variance (ANOVA) is a core technique for analysing data in the Life Sciences. This reference book bridges the gap between statistical theory and practical data analysis by presenting a comprehensive set of tables for all standard models of analysis of variance and covariance with up to three treatment factors. The book will serve as a tool to help post-graduates and professionals define their hypotheses, design appropriate experiments, translate them into a statistical model, validate the output from statistics packages and verify results. The systematic layout makes it easy for readers to identify which types of model best fit the themes they are investigating, and to evaluate the strengths and weaknesses of alternative experimental designs. In addition, a concise introduction to the principles of analysis of variance and covariance is provided, alongside worked examples illustrating issues and decisions faced by analysts.

Data Mining: Concepts and Techniques - Jiawei Han 2011-06-09
Data Mining: Concepts and Techniques provides the concepts and techniques in processing gathered data or information, which will be used in various applications. Specifically, it explains data mining and the tools used in discovering knowledge from the collected data. This book is referred as the knowledge discovery from data (KDD). It focuses on the feasibility, usefulness, effectiveness, and scalability of techniques of large data sets. After describing data mining, this edition explains the methods of knowing, preprocessing, processing, and warehousing data. It then presents information about data warehouses, online analytical processing (OLAP), and data cube technology. Then, the methods involved in mining frequent patterns, associations, and correlations for large data sets are described. The book details the methods for data classification and introduces the concepts and methods for data clustering. The remaining chapters discuss the outlier detection and the trends, applications, and research frontiers in data mining. This book is intended for Computer Science students, application developers, business professionals, and researchers who seek information on data mining. Presents dozens of algorithms and implementation examples, all in pseudo-code and suitable for use in real-world, large-scale data mining projects Addresses advanced topics such as mining object-relational databases, spatial databases, multimedia databases, time-series databases, text databases, the World Wide Web, and applications in several fields Provides a comprehensive, practical look at the concepts and techniques you need to get the most out of your data

Selecting Models from Data - P. Cheeseman 2012-12-06
This volume is a selection of papers presented at the Fourth

International Workshop on Artificial Intelligence and Statistics held in January 1993. These biennial workshops have succeeded in bringing together researchers from Artificial Intelligence and from Statistics to discuss problems of mutual interest. The exchange has broadened research in both fields and has strongly encour aged interdisciplinary work. The theme ofthe 1993 AI and Statistics workshop was: "Selecting Models from Data". The papers in this volume attest to the diversity of approaches to model selection and to the ubiquity of the problem. Both statistics and artificial intelligence have independently developed approaches to model selection and the corresponding algorithms to implement them. But as these papers make clear, there is a high degree of overlap between the different approaches. In particular, there is agreement that the fundamental problem is the avoidance of "overfitting"-Le., where a model fits the given data very closely, but is a poor predictor for new data; in other words, the model has partly fitted the "noise" in the original data.

An Introduction to Statistical Inference and Its Applications with R - Michael W. Trosset 2009-06-23
Emphasizing concepts rather than recipes, An Introduction to Statistical Inference and Its Applications with R provides a clear exposition of the methods of statistical inference for students who are comfortable with mathematical notation. Numerous examples, case studies, and exercises are included. R is used to simplify computation, create figures

Introduction to Biostatistics - Robert R. Sokal 2009
Suitable for undergraduates with a minimal background in mathematics, this introduction ranges from descriptive statistics to fundamental distributions and the testing of hypotheses. Includes numerous worked-out problems and examples. 1987 edition.

Encyclopedia of Epidemiology - Sarah Boslaugh 2008
Presents information from the field of epidemiology in a less technical, more accessible format. Covers major topics in epidemiology, from risk ratios to case-control studies to mediating and moderating variables, and more. Relevant topics from related fields such as biostatistics and health economics are also included.

Composite Sampling - Ganapati P. Patil 2010-12-25
Sampling consists of selection, acquisition, and quantification of a part of the population. While selection and acquisition apply to physical sampling units of the population, quantification pertains only to the variable of interest, which is a particular characteristic of the sampling units. A sampling procedure is expected to provide a sample that is representative with respect to some specified criteria. Composite sampling, under idealized conditions, incurs no loss of information for estimating the population means. But an important limitation to the method has been the loss of information on individual sample values, such as, the extremely large value. In many of the situations where individual sample values are of interest or concern, composite sampling methods can be suitably modified to retrieve the information on individual sample values that may be lost due to compositing. This book presents statistical solutions to issues that arise in the context of applications of composite sampling.

Biometry - obert R. Sokal 1995
Offers students with little background in statistical analysis an introduction to a variety of statistical concepts and methods. In addition to the incorporation of computer calculation, this new edition expands on a number of important topics, including the revised Kolmogrov-Smirnov test.

The Ecology of Mangrove and Related Ecosystems - Victor Jaccarini 2013-03-09
The mangrove, seagrass and coral reef ecosystems are of paramount ecological importance but have already undergone great degradation, which is advancing at an alarming rate. If present trends continue, the natural resource basis of the economy and ecology of tropical coastal regions will soon be ruined. This was the unanimous conclusion of the 110 scientists from 23 countries who gathered in Mombasa, Kenya, for a Symposium on the ecology of these ecosystems. Mangrove forest systems yield large amounts of fish, crabs, prawns and oysters. They are also valuable sources of fuelwood, timber, tannin and other natural products. Their non-marketable value is of equal importance: stabilization of the coastline, an indispensable nursery ground for numerous marine species with commercial value, a natural filter maintaining the clarity of nearshore water, a home for resident and migratory birds and other wildlife. Many of the true mangrove flora and fauna are now endangered by the clearing of the mangroves. It has been shown that in many countries between 25 and 100% of the mangrove forest has been destroyed alraedy in the last twenty years. The international scientific

assembly concluded that much can be done to stop the degradation of these damaged ecosystems and to rehabilitate them. But new techniques must be found to use them on a sustainable basis for long-term economic return and for the well-being of coastal human settlements and a healthy environment.

Plant Physiological Ecology - R. Pearcey 2012-12-06
Physiological plant ecology is primarily concerned with the function and performance of plants in their environment. Within this broad focus, attempts are made on one hand to understand the underlying physiological, biochemical and molecular attributes of plants with respect to performance under the constraints imposed by the environment. On the other hand physiological ecology is also concerned with a more synthetic view which attempts to under stand the distribution and success of plants measured in terms of the factors that promote long-term survival and reproduction in the environment. These concerns are not mutually exclusive but rather represent a continuum of research approaches. Osmond et al. (1980) have elegantly pointed this out in a space-time scale showing that the concerns of physiological ecology range from biochemical and organelle-scale events with time constants of a second or minutes to succession and evolutionary-scale events involving communities and ecosystems and thousands, if not millions, of years. The focus of physiological ecology is typically at the single leaf or root system level extending up to the whole plant. The time scale is on the order of minutes to a year. The activities of individual physiological ecologists extend in one direction or the other, but few if any are directly concerned with the whole space-time scale. In their work, however, they must be cognizant both of the underlying mechanisms as well as the consequences to ecological and evolutionary processes.

The Guenons: Diversity and Adaptation in African Monkeys - Mary E. Glenn 2006-04-11
It has been twelve years since a work relating to the long-tailed African monkeys known as the guenons has been published and fifteen years have passed since the last major scientific symposium was held that was solely dedicated to current research on members of this monkey group living in the wild. Since that time, new guenon species and subspecies have been discovered, previously unstudied guenon species have become the subject of long-term research projects, and knowledge of the more well-known guenon species has greatly increased. This volume presents novel information and keen insight on research previously studied and newly discovered. A wide range of topics related to guenon biology is presented, including evolution, taxonomy, biogeography, reproductive physiology, social and positional behavior, ecology, and conservation. Composed of 26 chapters compiled by 47 authors, many of whom are young investigators in their field, The Guenons: Diversity and Adaptation in African Monkeys provides a valuable resource for researchers and scientists in the fields of anthropology, primatology, zoology, and conservation biology.

Using Science to Improve the BLM Wild Horse and Burro Program - Committee to Review the Bureau of Land Management Wild Horse and Burro Management Program 2013-09-18
Using Science to Improve the BLM Wild Horse and Burro Program: A Way Forward reviews the science that underpins the Bureau of Land Management's oversight of free-ranging horses and burros on federal public lands in the western United States, concluding that constructive changes could be implemented. The Wild Horse and Burro Program has not used scientifically rigorous methods to estimate the population sizes of horses and burros, to model the effects of management actions on the animals, or to assess the availability and use of forage on rangelands. Evidence suggests that horse populations are growing by 15 to 20 percent each year, a level that is unsustainable for maintaining healthy horse populations as well as healthy ecosystems. Promising fertility-control methods are available to help limit this population growth, however. In addition, science-based methods exist for improving population estimates, predicting the effects of management practices in order to maintain genetically diverse, healthy populations, and estimating the productivity of rangelands. Greater transparency in how science-based methods are used to inform management decisions may help increase public confidence in the Wild Horse and Burro Program.

Numerical Taxonomy - Joseph Felsenstein 2011-12-07
The NATO Advanced Study Institute on Numerical Taxonomy took place on the 4th - 16th of July, 1982, at the Kur- und Kongresshotel Residenz in Bad Windsheim, Federal Republic of Germany. This volume is the proceedings of that meeting, and contains papers by over two-thirds of the participants in the Institute. Numerical taxonomy has been attracting

increased attention from systematists and evolutionary biologists. It is an area which has been marked by debate and conflict, sometimes bitter. Happily, this meeting took place in an atmosphere of "GemUtlichkeit", though scarcely of unanimity. I believe that these papers will show that there is an increased understanding by each taxonomic school of each others' positions. This augurs a period in which the debates become more concrete and specific. Let us hope that they take place in a scientific atmosphere which has occasionally been lacking in the past. Since the order of presentation of papers in the meeting was affected by time constraints, I have taken the liberty of rearranging them into a more coherent subject ordering. The first group of papers, taken from the opening and closing days of the meeting, debate philosophies of classification. The next two sections have papers on congruence, clustering and ordination. A notable concern of these participants is the comparison and testing of classifications. This has been missing from many previous discussions of numerical classification.

Biometry; the Principles and Practice of Statistics in Biological Research - Robert R. Sokal 1969

Ecological Niches and Geographic Distributions (MPB-49) - A. Townsend Peterson 2011-11-20
Terminology, conceptual overview, biogeography, modeling.