

## Conservation Of Wildlife Populations Demography Genetics And Management

Never HIGHLIGHT a Book Again Virtually all testable terms, concepts, persons, places, and events are included. Cram101 Textbook Outlines gives all of the outlines, highlights, notes for your textbook with optional online practice tests. Only Cram101 Outlines are Textbook Specific. Cram101 is NOT the Textbook. Accompanys: 9780521673761

All six species of sea turtles found in U.S. waters are listed as endangered or threatened, but the exact population sizes of these species are unknown due to a lack of key information regarding birth and survival rates. The U.S. Endangered Species Act prohibits the hunting of sea turtles and reduces incidental losses from activities such as shrimp trawling and development on beaches used for nesting. However, current monitoring does not provide enough information on sea turtle populations to evaluate the effectiveness of these protective measures. Sea Turtle Status and Trends reviews current methods for assessing sea turtle populations and finds that although counts of sea turtles are essential, more detailed information on sea turtle biology, such as survival rates and breeding patterns, is needed to predict and understand changes in populations in order to develop successful management and conservation plans.

Professor L. Scott Mills has been named a 2009 Guggenheim Fellow by the board of trustees of the John Simon Guggenheim Memorial Foundation. Conservation of Wildlife Populations provides an accessible introduction to the most relevant concepts and principles for solving real-world management problems in wildlife and conservation biology. Bringing together insights from traditionally disparate disciplines, the book shows how population biology addresses important questions involving the harvest, monitoring, and conservation of wildlife populations. Covers the most up-to-date approaches for assessing factors that affect both population growth and interactions with other species, including predation, genetic changes, harvest, introduced species, viability analysis and habitat loss and fragmentation. Is an essential guide for undergraduates and postgraduate students of wildlife biology, conservation biology, ecology, and environmental studies and an invaluable resource for practising managers on how population biology can be applied to wildlife conservation and management. Artwork from the book is available to instructors online at <http://www.blackwellpublishing.com/mills>. An Instructor manual CD-ROM for this title is available. Please contact our Higher Education team at [HigherEducation@wiley.com](mailto:HigherEducation@wiley.com) for more information.

Many endangered species of wild animals are managed in captivity through studbooks. In this book these data-rich resources are mined in innovative, integrated and statistically tested ways to maximise information gain for conservation practice – whether for captive or released/reintroduced or managed wild populations. This book is thus an important tool for all species managers, and for students and researchers in small population biology and wildlife conservation. The book's studbook analyses are grouped in three interrelated sections: natural history, demography and genetics. Statistical tests to determine the significance of results or to compare results between subgroups are undertaken throughout. Real studbooks of a variety of species, e.g. cranes, wolverines, blesbok, illustrate the practical applications and interpretations of the analyses and statistics. The “natural history” section presents analyses to determine baseline species information such as litter size, inter-birth interval, longevity and seasonality. “Demography” covers census(-style) analyses, age-class based life tables, comparative survival analyses and population projections. Solutions for dealing with small sample sizes are included. Inbreeding depression and unconscious selection form the main focus of the “genetics” section. Survival and life table analyses are used to assess inbreeding effects. Quantitative genetics methods are applied to natural history traits as a tool to monitor genetic variation. A fourth section on “conservation” shows how data from captive populations can be used where natural history data from wild populations are missing. A real example uses studbook data to inform Population Viability Analysis. The final section deals with issues related to incomplete and missing data and statistical topics. The purpose-written open-source software programs “Population Management Library (PML)” and “studbookR” used for analyses in the book, are available at [www.princee.com](http://www.princee.com).

This is an introduction to the concepts and principles for solving management problems in wildlife and conservation biology. The book shows how population biology addresses questions involving the harvest, monitoring, and conservation of wildlife populations.

Wildlife Demography compiles the multitude of available estimation techniques based on sex and age data, and presents these varying techniques in one organized, unified volume. Designed to guide researchers to the most appropriate estimator based upon their particular data set and the desired level of study precision, this book provides quantitative consideration, statistical models, estimator variance, assumptions and examples of use. The authors focus on estimation techniques using sex and age ratios because this data is relatively easy to collect and commonly used by wildlife management. Applicable to a wide array of wildlife species, including game and non-game birds and mammals. Features more than 100 annotated examples illustrating application of statistical methods. Includes more than 640 references of the analysis of nontagging data and the factors that may influence interpretation. Derives historical and ad hoc demographic methods in a modern statistical framework.

There are more than one thousand species of threatened birds in the world, while many others are valued for sport and some are serious pests. This volume reviews our current understanding of avian population dynamics and explores ways in which population studies can contribute to effective conservation and management. Estimation of demographic parameters, the role of mathematical modelling, and the special problems of island populations and seabird populations are discussed. The emphasis throughout is on how bird populations are regulated under various constraints and conditions, including the impact of environmental changes.

Centring on South Africa's Hluhluwe-iMfolozi Park, this book synthesizes a century of insights from the ecology and conservation management of one of Africa's oldest protected wildlife areas. The park provides important lessons for conservation management, as it has maintained conservation values rivalling those of much larger parks sometimes through, and sometimes despite, strong management interventions, including the rescue of the white rhino from extinction. In addition, the book highlights the ecological science produced in the park, much of which has become widely influential, including the megaherbivore concept, new functional approaches to understanding biomes, and new understandings about the role of consumers in shaping ecosystems. The volume is ideal for researchers and policymakers interested in the conservation of relatively small, isolated and protected areas.

A single-resource volume of information on the most current and effective techniques of wildlife modeling, *Models for Planning Wildlife Conservation in Large Landscapes* is appropriate for students and researchers alike. The unique blend of conceptual, methodological, and application chapters discusses research, applications and concepts of modeling and presents new ideas and strategies for wildlife habitat models used in conservation planning. The book makes important contributions to wildlife conservation of animals in several ways: (1) it highlights historical and contemporary advancements in the development of wildlife habitat models and their implementation in conservation planning; (2) it provides practical advice for the ecologist conducting such studies; and (3) it supplies directions for future research including new strategies for successful studies. Intended to provide a recipe for successful development of wildlife habitat models and their implementation in conservation planning, the book could be used in studying wildlife habitat models, conservation planning, and management techniques. Additionally it may be a supplemental text in courses dealing with quantitative assessment of wildlife populations. Additionally, the length of the book would be ideal for graduate student seminar course. Using wildlife

habitat models in conservation planning is of considerable interest to wildlife biologists. With ever tightening budgets for wildlife research and planning activities, there is a growing need to use computer methods. Use of simulation models represents the single best alternative. However, it is imperative that these techniques be described in a single source. Moreover, biologists should be made aware of alternative modeling techniques. It is also important that practical guidance be provided to biologists along with a demonstration of utility of these procedures. Currently there is little guidance in the wildlife or natural resource planning literature on how best to incorporate wildlife planning activities, particularly community-based approaches. Now is the perfect time for a synthetic publication that clearly outlines the concepts and available methods, and illustrates them. Only single resource book of information not only on various wildlife modeling techniques, but also with practical guidance on the demonstrated utility of each based on real-world conditions. Provides concepts, methods and applications for wildlife ecologists and others within a GIS context. Written by a team of subject-area experts

The Northern Spotted Owl, a threatened species that occurs in coniferous forests in the western United States, has become a well-known environmental symbol. But how is the owl actually faring? This book contains the results of a long-term effort by a large group of leading researchers to document population trends of the Northern Spotted Owl. The study was conducted on 11 areas in the Pacific Northwest from 1985 to 2008, and its objectives were both to evaluate population trends and to assess relationships between reproductive rates and recruitment of owls and covariates such as weather, habitat, and the invasion of a closely related species, the Barred Owl. Among other findings, the study shows that fecundity was declining in five populations, stable in three, and increasing in three areas. Annual apparent survival rates of adults were declining in 10 out of 11 areas. This broad, synthetic work provides the most complete and up-to-date picture of the population status of this inconspicuous forest owl, which is at the center of the complex and often volatile debate regarding the management of forest lands in the western United States.

Spatial Capture-Recapture provides a comprehensive how-to manual with detailed examples of spatial capture-recapture models based on current technology and knowledge. Spatial Capture-Recapture provides you with an extensive step-by-step analysis of many data sets using different software implementations. The authors' approach is practical – it embraces Bayesian and classical inference strategies to give the reader different options to get the job done. In addition, Spatial Capture-Recapture provides data sets, sample code and computing scripts in an R package. Comprehensive reference on revolutionary new methods in ecology makes this the first and only book on the topic Every methodological element has a detailed worked example with a code template, allowing you to learn by example Includes an R package that contains all computer code and data sets on companion website

Genome sequencing enables scientists to study genes over time and to test the genetic variability of any form of life, from bacteria to mammals. Thanks to advances in molecular genetics, scientists can now determine an animal's degree of inbreeding or compare genetic variation of a captive species to wild or natural populations. Mapping an organism's genetic makeup recasts such terms as biodiversity and species and enables the conservation of rare or threatened species, populations, and genes. By introducing a new paradigm for studying and preserving life at a variety of levels, genomics offers solutions to previously intractable problems in understanding the biology of complex organisms and creates new tools for preserving the patterns and processes of life on this planet. Featuring a number of high-profile researchers, this volume introduces the use of molecular genetics in conservation biology and provides a historical perspective on the opportunities and challenges presented by new technologies. It discusses zoo-, museum-, and herbarium-based biological collections, which have expanded over the past decade, and covers the promises and problems of genomic and reproductive technology. The collection concludes with the philosophical and legal issues of conservation genetics and their potential effects on public policy.

An increasing variety of biological problems involving resource management, conservation and environmental quality have been dealt with using the principles of population biology (defined to include population dynamics, genetics and certain aspects of community ecology). There appears to be a mixed record of successes and failures and almost no critical synthesis or reviews that have attempted to discuss the reasons and ways in which population biology, with its remarkable theoretical as well as experimental advances, could find more useful application in agriculture, forestry, fishery, medicine and resource and environmental management. This book provides examples of state-of-the-art applications by a distinguished group of researchers in several fields. The diversity of topics richly illustrates the scientific and economic breadth of their discussions as well as epistemological and comparative analyses by the authors and editors. Several principles and common themes are emphasized and both strengths and potential sources of uncertainty in applications are discussed. This volume will hopefully stimulate new interdisciplinary avenues of problem-solving research.

Population ecology has matured to a sophisticated science with astonishing potential for contributing solutions to wildlife conservation and management challenges. And yet, much of the applied power of wildlife population ecology remains untapped because its broad sweep across disparate subfields has been isolated in specialized texts. In this book, L. Scott Mills covers the full spectrum of applied wildlife population ecology, including genomic tools for non-invasive genetic sampling, predation, population projections, climate change and invasive species, harvest modeling, viability analysis, focal species concepts, and analyses of connectivity in fragmented landscapes. With a readable style, analytical rigor, and hundreds of examples drawn from around the world, Conservation of Wildlife Populations (2nd ed) provides the conceptual basis for applying population ecology to wildlife conservation decision-making. Although targeting primarily undergraduates and beginning graduate students with some basic training in basic ecology and statistics (in majors that could include wildlife biology, conservation biology, ecology, environmental studies, and biology), the book will also be useful for practitioners in the field who want to find - in one place and with plenty of applied examples - the latest advances in the genetic and demographic aspects of population ecology. Additional resources for this book can be found at: [www.wiley.com/go/mills/wildlifepopulations](http://www.wiley.com/go/mills/wildlifepopulations).

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.

In the summer of 1993, twenty-six graduate and postdoctoral students and fourteen lecturers converged on Cornell University for a summer school devoted to structured-population models. This school was one of a series to address concepts cutting across the traditional boundaries separating terrestrial, marine, and freshwater ecology. Earlier schools resulted in the books *Patch Dynamics* (S. A. Levin, T. M. Powell & J. H. Steele, eds., Springer-Verlag, Berlin, 1993) and *Ecological Time Series* (T. M. Powell & J. H. Steele, eds., Chapman and Hall, New York, 1995); a book on food webs is in preparation. Models of population structure (differences among individuals due to age, size, developmental stage, spatial location, or genotype) have an important place in studies of all three kinds of ecosystem. In choosing the participants and lecturers for the school, we selected for diversity-biologists who knew some mathematics and mathematicians who knew some biology, field biologists sobered by encounters with messy data and theoreticians intoxicated by the elegance of the underlying mathematics, people concerned with long-term evolutionary problems and people concerned with the acute crises of conservation biology. For four weeks, these perspectives swirled in discussions that started in the lecture hall and carried on into the sweltering Ithaca night. Diversity may not increase stability, but it surely makes things interesting.

Every day, biologists in parkas, raincoats, and rubber boots go into the field to capture and mark a variety of animal species. Back in the office, statisticians create analytical models for the field biologists' data. But many times, representatives of the two professions do not fully understand one another's roles. This book bridges this gap by helping biologists understand state-of-the-art statistical methods for analyzing capture-recapture data. In so doing, statisticians will also become more familiar with the design of field studies and with the real-life issues facing biologists. Reliable outcomes of capture-recapture studies are vital to answering key ecological questions. Is the population increasing or decreasing? Do more or fewer animals have a particular characteristic? In answering these questions, biologists cannot hope to capture and mark entire populations. And frequently, the populations change unpredictably during a study. Thus, increasingly sophisticated models have been employed to convert data into answers to ecological questions. This book, by experts in capture-recapture analysis, introduces the most up-to-date methods for data analysis while explaining the theory behind those methods. Thorough, concise, and portable, it will be immensely useful to biologists, biometricians, and statisticians, students in both fields, and anyone else engaged in the capture-recapture process.

*Reintroduction of Fish and Wildlife Populations* provides a practical step-by-step guide to successfully planning, implementing, and evaluating the reestablishment of animal populations in former habitats or their introduction in new environments. In each chapter, experts in reintroduction biology outline a comprehensive synthesis of core concepts, issues, techniques, and perspectives. This manual and reference supports scientists and managers from fisheries and wildlife professions as they plan reintroductions, initiate releases of individuals, and manage restored populations over time. Covering a broad range of taxonomic groups, ecosystems, and global regions, this edited volume is an essential guide for academics, students, and professionals in natural resource management.

*Integrated Population Models: Theory and Ecological Applications with R and JAGS* is the first book on integrated population models, which constitute a powerful framework for combining multiple data sets from the population and the individual levels to estimate demographic parameters, and population size and trends. These models identify drivers of population dynamics and forecast the composition and trajectory of a population. Written by two population ecologists with expertise on integrated population modeling, this book provides a comprehensive synthesis of the relevant theory of integrated population models with an extensive overview of practical applications, using Bayesian methods by means of case studies. The book contains fully-documented, complete code for fitting all models in the free software, R and JAGS. It also includes all required code for pre- and post-model-fitting analysis. *Integrated Population Models* is an invaluable reference for researchers and practitioners involved in population analysis, and for graduate-level students in ecology, conservation biology, wildlife management, and related fields. The text is ideal for self-study and advanced graduate-level courses. Offers practical and accessible ecological applications of IPMs (integrated population models) Provides full documentation of analyzed code in the Bayesian framework Written and structured for an easy approach to the subject, especially for non-statisticians

Following the much acclaimed success of the first volume of *Key Topics in Conservation Biology*, this entirely new second volume addresses an innovative array of key topics in contemporary conservation biology. Written by an internationally renowned team of authors, *Key Topics in Conservation Biology 2* adds to the still topical foundations laid in the first volume (published in 2007) by exploring a further 25 cutting-edge issues in modern biodiversity conservation, including controversial subjects such as setting conservation priorities, balancing the focus on species and ecosystems, and financial mechanisms to value biodiversity and pay for its conservation. Other chapters, setting the framework for conservation, address the sociology and philosophy of people's relation with Nature and its impact on health, and such challenging practical issues as wildlife trade and conflict between people and carnivores. As a new development, this second volume of *Key Topics* includes chapters on major ecosystems, such as forests, islands and both fresh and marine waters, along with case studies of the conservation of major taxa: plants, butterflies, birds and mammals. A further selection of topics consider how to safeguard the future through monitoring, reserve planning, corridors and connectivity, together with approaches to reintroduction and re-wilding, along with managing wildlife disease. A final chapter, by the editors, synthesises thinking on the relationship between biodiversity conservation and human development. Each topic is explored by a team of top international experts, assembled to bring their own cross-cutting knowledge to a penetrating synthesis of the issues from both theoretical and practical perspectives. The interdisciplinary nature of biodiversity conservation is reflected throughout the book. Each essay examines the fundamental principles of the topic, the methodologies involved and, crucially, the human dimension. In this way, *Key Topics in Conservation Biology 2*, like its sister volume, *Key Topics in Conservation Biology*, embraces issues from cutting-edge ecological science to policy, environmental economics, governance, ethics, and the practical issues of implementation. *Key Topics in Conservation Biology 2* will, like its sister volume, be a valuable resource in universities and colleges, government departments, and conservation agencies. It is aimed particularly at senior undergraduate and graduate students in conservation biology and wildlife management and wider ecological and environmental subjects, and those taking Masters degrees in any field relevant to conservation and the environment.

Conservation practitioners, policy-makers, and the wider general public eager to understand more about important environmental issues will also find this book invaluable.

Wildlife management is about finding the balance between conservation of endangered species and mitigating the impacts of overabundant wildlife on humans and the environment. This book deals with the monitoring of fauna, related diseases, and interactions with humans. It is intended to assist and support the professional worker in wildlife management.

This impressive author team brings the wealth of advances in conservation genetics into the new edition of this introductory text, including new chapters on population genomics and genetic issues in introduced and invasive species. They continue the strong learning features for students - main points in the margin, chapter summaries, vital support with the mathematics, and further reading - and now guide the reader to software and databases. Many new references reflect the expansion of this field. With examples from mammals, birds,...

Sea otters are good indicators of ocean health. In addition, they are a keystone species, offering a stabilizing effect on ecosystem, controlling sea urchin populations that would otherwise inflict damage to kelp forest ecosystems. The kelp forest ecosystem is crucial for marine organisms and contains coastal erosion. With the concerns about the imperiled status of sea otter populations in California, Aleutian Archipelago and coastal areas of Russia and Japan, the last several years have shown growth of interest culturally and politically in the status and preservation of sea otter populations. *Sea Otter Conservation* brings together the vast knowledge of well-respected leaders in the field, offering insight into the more than 100 years of conservation and research that have resulted in recovery from near extinction. This publication assesses the issues influencing prospects for continued conservation and recovery of the sea otter populations and provides insight into how to handle future global changes. Covers scientific, cultural, economic and political components of sea otter conservation Provides guidance on how to manage threats to the sea otter populations in the face of future global changes Highlights the effects that interactions of coastal animals have with the marine ecosystem

Population genomics is revolutionizing wildlife biology, conservation, and management by providing key and novel insights into genetic, population and landscape-level processes in wildlife, with unprecedented power and accuracy. This pioneering book presents the advances and potential of population genomics in wildlife, outlining key population genomics concepts and questions in wildlife biology, population genomics approaches that are specifically applicable to wildlife, and application of population genomics in wildlife population and evolutionary biology, ecology, adaptation and conservation and management. It is important for students, researchers, and wildlife professionals to understand the growing set of population genomics tools that can address issues from delineation of wildlife populations to assessing their capacity to adapt to environmental change. This book brings together leading experts in wildlife population genomics to discuss the key areas of the field, as well as challenges, opportunities and future prospects of wildlife population genomics.

This book presents a technical review of ecological and life history information on a range of Bornean wildlife species, aimed at identifying what makes these species sensitive to timber harvesting practices and associated impacts. It addresses three audiences: 1) those involved in assessing and regulating timber harvesting activities in Southeast Asia, 2) those involved in trying to achieve conservation goals in the region, and 3) those undertaking research to improve multipurpose forest management. This book shows that forest management can be improved in many simple ways to allow timber extraction and wildlife conservation to be more compatible than under current practices. The recommendations can also be valuable to the many governmental and non-governmental organisations promoting sustainable forest management and eco-labelling. Finally, it identifies a number of shortcomings and gaps in knowledge, which the hope can interest the scientific community and promote further research. This review is, an important scientific step toward understanding and improving sustainable forestry practices for long-term biodiversity conservation. Even in the short term, however, significant improvements can be made to improve both conservation and the efficiency of forest management, and there is no need to delay action due to a perceived lack of information. In the longer term it is expected that the recommendations from this review will be implemented, and that further research will continue to help foster an acceptable balance among the choices needed to maintain healthy wildlife populations and biodiversity in a productive forest estate.

Loss of biodiversity is among the greatest problems facing the world today. *Conservation and the Genetics of Populations* gives a comprehensive overview of the essential background, concepts, and tools needed to understand how genetic information can be used to conserve species threatened with extinction, and to manage species of ecological or commercial importance. New molecular techniques, statistical methods, and computer programs, genetic principles, and methods are becoming increasingly useful in the conservation of biological diversity. Using a balance of data and theory, coupled with basic and applied research examples, this book examines genetic and phenotypic variation in natural populations, the principles and mechanisms of evolutionary change, the interpretation of genetic data from natural populations, and how these can be applied to conservation. The book includes examples from plants, animals, and microbes in wild and captive populations. This second edition contains new chapters on Climate Change and Exploited Populations as well as new sections on genomics, genetic monitoring, emerging diseases, metagenomics, and more. One-third of the references in this edition were published after the first edition. Each of the 22 chapters and the statistical appendix have a Guest Box written by an expert in that particular topic (including James Crow, Louis Bernatchez, Loren Rieseberg, Rick Shine, and Lisette Waits). This book is essential for advanced undergraduate and graduate students of conservation genetics, natural resource management, and conservation biology, as well as professional conservation biologists working for wildlife and habitat management agencies. Additional resources for this book can be found at: <http://www.wiley.com/go/allendorf/populations> [www.wiley.com/go/allendorf/populations/a](http://www.wiley.com/go/allendorf/populations/a). Human-induced climate change is emerging as one of the gravest threats to biodiversity in history, and while a vast amount of literature on the ecological impact of climate change exists, very little has been dedicated to the management of wildlife populations and communities in the wake of unprecedented habitat changes. *Wildlife Conservation in a Changing Climate* is an essential resource, bringing together leaders in the fields of climate change ecology, wildlife population dynamics, and environmental policy to examine the impacts of climate change on populations of terrestrial vertebrates. Chapters assess the details of climate change ecology, including demographic implications for individual populations, evolutionary responses, impacts on movement patterns, alterations of species interactions, and predicting impacts across regions. The contributors also present a number of strategies by which conservationists and wildlife managers can counter or mitigate the impacts of climate change as well as increase the resilience of wildlife populations to such changes. A seminal contribution to the fields of ecology and conservation biology, *Wildlife Conservation in a Changing Climate* will serve as the spark that ignites a new direction of discussions about and action on the ecology and conservation of wildlife in a changing climate.

This book provides a hands-on introduction to the construction and application of models to studies of vertebrate distribution, abundance, and habitat. The book is aimed at field biologists, conservation planners, and advanced undergraduate and postgraduate students who are involved with planning and analyzing conservation studies, and applying the results to conservation decisions. The book also acts as a bridge to more advanced and mathematically challenging coverage in the wider literature. Part I provides a basic background in population and community modeling. It introduces statistical models, and familiarizes the reader with important concepts in the design of monitoring and research programs. These programs provide the essential data that guide conservation decision making. Part II covers the principal methods used to estimate abundance, occupancy, demographic parameters, and community parameters, including occupancy sampling, sample counts, distance sampling, and capture-mark-recapture (for both closed and open populations). Emphasis is placed on practical aspects of designing and implementing field studies, and the proper analysis of data. Part III introduces structured decision making and adaptive management, in which predictive models are used to inform conservation decision makers on appropriate decisions in the face of uncertainty—with the goal of reducing uncertainty through monitoring and research. A detailed case study is used to illustrate each of these themes. Numerous worked examples and accompanying electronic material (on a website - <http://www.blackwellpublishing.com/conroy> - and accompanying CD) provide the details of model construction and application, and data analysis.

Introduction to Population Ecology, 2nd Edition is a comprehensive textbook covering all aspects of population ecology. It uses a wide variety of field and laboratory examples, botanical to zoological, from the tropics to the tundra, to illustrate the fundamental laws of population ecology. Controversies in population ecology are brought fully up to date in this edition, with many brand new and revised examples and data. Each chapter provides an overview of how population theory has developed, followed by descriptions of laboratory and field studies that have been inspired by the theory. Topics explored include single-species population growth and self-limitation, life histories, metapopulations and a wide range of interspecific interactions including competition, mutualism, parasite-host, predator-prey and plant-herbivore. An additional final chapter, new for the second edition, considers multi-trophic and other complex interactions among species. Throughout the book, the mathematics involved is explained with a step-by-step approach, and graphs and other visual aids are used to present a clear illustration of how the models work. Such features make this an accessible introduction to population ecology; essential reading for undergraduate and graduate students taking courses in population ecology, applied ecology, conservation ecology, and conservation biology, including those with little mathematical experience.

Many of the world's leading conservation and population biologists evaluate what has become a key tool in estimating extinction risk and evaluating potential recovery strategies - population viability analysis, or PVA.

Organ, James Peek, William Porter, John Sandlos, James A. Schaefer

Conservation of Wildlife Populations Demography, Genetics, and Management John Wiley & Sons

A synthesis of contemporary analytical and modeling approaches in population ecology The book provides an overview of the key analytical approaches that are currently used in demographic, genetic, and spatial analyses in population ecology. The chapters present current problems, introduce advances in analytical methods and models, and demonstrate the applications of quantitative methods to ecological data. The book covers new tools for designing robust field studies; estimation of abundance and demographic rates; matrix population models and analyses of population dynamics; and current approaches for genetic and spatial analysis. Each chapter is illustrated by empirical examples based on real datasets, with a companion website that offers online exercises and examples of computer code in the R statistical software platform. Fills a niche for a book that emphasizes applied aspects of population analysis Covers many of the current methods being used to analyse population dynamics and structure Illustrates the application of specific analytical methods through worked examples based on real datasets Offers readers the opportunity to work through examples or adapt the routines to their own datasets using computer code in the R statistical platform Population Ecology in Practice is an excellent book for upper-level undergraduate and graduate students taking courses in population ecology or ecological statistics, as well as established researchers needing a desktop reference for contemporary methods used to develop robust population assessments.

Harvest of Fish and Wildlife: New Paradigms for Sustainable Management unites experts in wildlife and fishery sciences for an interdisciplinary overview of harvest management. This book presents unique insights for embracing the complete social-ecological system to ensure a sustainable future. It educates users on evolutionary and population dynamics; social and political influences; hunter and angler behavior; decision processes; impacts of regulations; and stakeholder involvement. Features: Written by twenty-four teams of leading scientists and managers. Promotes transparent justification for fishing and hunting regulations. Provides examples for integrating decision making into management. Emphasizes creativity in management by integrating art and science. This book appeals to population biologists, evolutionary biologists and social scientists. It is a key resource for on-the-ground managers and research scientists developing harvesting applications. As the book's contributors explain: "Making decisions that are robust to uncertainty...is a paradigm shift with a lot of potential to improve outcomes for fish and wildlife populations." —Andrew Tyre and Brigitte Tenhumberg "Temporal shifts in system states...must somehow be anticipated and dealt with to derive harvest policies that remain optimal in the long term." —Michael Conroy "Proactive, effective management of sports persons...will be essential in the new paradigm of harvest management." —Matthew Gruntorad and Christopher Chizinski

In the face of so many unprecedented changes in our environment, the pressure is on scientists to lead the way toward a more sustainable future. Written by a team of ecologists, Monitoring Animal Populations and Their Habitats: A Practitioner's Guide provides a framework that natural resource managers and researchers can use to design monitoring programs that will benefit future generations by distilling the information needed to make informed decisions. In addition, this text is valuable for undergraduate- and

graduate-level courses that are focused on monitoring animal populations. With the aid of more than 90 illustrations and a four-page color insert, this book offers practical guidance for the entire monitoring process, from incorporating stakeholder input and data collection, to data management, analysis, and reporting. It establishes the basis for why, what, how, where, and when monitoring should be conducted; describes how to analyze and interpret the data; explains how to budget for monitoring efforts; and discusses how to assemble reports of use in decision-making. The book takes a multi-scaled and multi-taxa approach, focusing on monitoring vertebrate populations and upland habitats, but the recommendations and suggestions presented are applicable to a variety of monitoring programs. Lastly, the book explores the future of monitoring techniques, enabling researchers to better plan for the future of wildlife populations and their habitats. *Monitoring Animal Populations and Their Habitats: A Practitioner's Guide* furthers the goal of achieving a world in which biodiversity is allowed to evolve and flourish in the face of such uncertainties as climate change, invasive species proliferation, land use expansion, and population growth.

A fresh approach to some of the classic questions in ecology.

The second edition of *Wildlife Ecology, Conservation, and Management* provides a thorough introduction to general ecological principles and examines how they can be applied to wildlife management and conservation. Expanded and updated, this second edition includes new chapters on understanding ecosystems and the use of computer models in wildlife management. Gives a comprehensive, up-to-date overview of ecology including the latest theories on population dynamics and conservation. Reviews practical applications and techniques and how these can be used to formulate realistic objectives within an ecological framework. Examples of real-life management situations from around the world provide a broad perspective on the international problems of conservation. Worked examples on CD enable students to practice calculations explained in the text. Artwork from the book is available to instructors online at [www.blackwellpublishing.com/sinclair](http://www.blackwellpublishing.com/sinclair). An Instructor manual CD-ROM for this title is available. Please contact our Higher Education team at [HigherEducation@wiley.com](mailto:HigherEducation@wiley.com) for more information. Note: CD-ROM/DVD and other supplementary materials are not included as part of eBook file.

*Analysis and Management of Animal Populations* deals with the processes involved in making informed decisions about the management of animal populations. It covers the modeling of population responses to management actions, the estimation of quantities needed in the modeling effort, and the application of these estimates and models to the development of sound management decisions. The book synthesizes and integrates in a single volume the methods associated with these themes, as they apply to ecological assessment and conservation of animal populations. Integrates population modeling, parameter estimation and decision-theoretic approaches to management in a single, cohesive framework. Provides authoritative, state-of-the-art descriptions of quantitative approaches to modeling, estimation and decision-making. Emphasizes the role of mathematical modeling in the conduct of science and management. Utilizes a unifying biological context, consistent mathematical notation, and numerous biological examples. *Wildlife Management and Conservation* presents a clear overview of the management and conservation of animals, their habitats, and how people influence both. The relationship among these three components of wildlife management is explained in chapters written by leading experts and is designed to prepare wildlife students for careers in which they will be charged with maintaining healthy animal populations; finding ways to restore depleted populations while reducing overabundant, introduced, or pest species; and managing relationships among various human stakeholders. Topics covered in this book include • The definitions of wildlife and management • Human dimensions of wildlife management • Animal behavior • Predator–prey relationships • Structured decision making • Issues of scale in wildlife management • Wildlife health • Historical context of wildlife management and conservation • Hunting and trapping • Nongame species • Nutrition ecology • Water management • Climate change • Conservation planning

This book, the first in the “Wildlife Research Monograph” series, defines “wildlife research” in a variety of contexts and reviews recent research trends. The authors present the current developments they have identified using bibliometric analyses of the most common, relevant and emerging topics in wildlife research over the last three decades. Diverse aspects of wildlife research are discussed, including wildlife demography, infections spread between wildlife, livestock and humans, habitat requirements and management, as well as the effects of renewable energy and pollutants on wildlife. Furthermore the authors explore topics like advances in the study of species distribution, invasive species, use of molecular markers in wildlife studies and the sustainability of wildlife exploitation and conservation conflicts. The book offers a comprehensive overview of advances in wildlife research in the last decades.

Copyright: [a94b3b712bd6c861c8758cb2f1746a69](https://doi.org/10.1002/9781119466969)