

## **Reproductive Physiology Of Mammals And Birds Comparative Physiology Of Domestic And Laboratory Animals And Man A Series Of Books In Agricultural Science**

Any events that challenge the survival of living organisms may be classified as stressors. These stressors could include, for example, lack of food, increased population pressure, predatory pressure, climatic events or in the case of humans, loss of a loved one, lack of financial security or uncertainty in the future. Although most physiological systems are affected by stress, those systems that regulate reproductive physiology and behaviour are the most sensitive. All multicellular organisms show a stress related effect on reproduction, although the more complex organisms, such as mammals, have the most complex effects. The objective of this book is to provide a comparative analysis of the mechanisms by which stress regulates reproduction exploring the evolution of stress perceiving systems from the simplest organisms to humans. Taking an integrated approach, utilising a genes-to-environment overview, the book examines the stressors that occur at all levels of organisation. These theories are used to examine and explain human and animal reproductive behaviour and physiology under stressful conditions providing a well-written, concise introduction to this important subject.

A unique interdisciplinary overview of the way mammals reproduce, this volume synthesizes research done by laboratory physiologists, behaviorists, population ecologists, and animal breeders. F. H. Bronson has drawn together the disparate literature in these areas to provide students and researchers with a comprehensive and biologically integrated approach to the study of mammalian reproduction. Each chapter presents a wealth of issues and questions, summarizing the current consensus on interpretations as well as viable alternatives under debate. The book is principally concerned with how environmental factors regulate reproduction. Bronson proposes that a mammal's reproductive performance routinely reflects simultaneous regulation by several environmental factors that interact in fascinatingly complex ways.

Environment is defined broadly, and the chapters give equal weight to ecological and physiological factors when considering how variables such as food availability, ambient temperature, photoperiod, and social cues interact to regulate a mammal's reproduction. Particular attention is given to seasonal breeding, and a taxonomically arranged chapter underscores the importance of comparative and evolutionary biology to an understanding of mammalian reproduction. Mammalian Reproductive Biology is a powerful argument for the value and importance of interdisciplinary approaches to research. Its almost 1,500 references constitute the most comprehensive bibliography to date on this topic. Bronson also gives detailed consideration to promising areas for future research. Well organized, carefully planned, and clearly written, this book will become standard reading for scientists concerned with any aspect of mammalian

biology.

The revised, updated Second Edition of this classic work is a masterful distillation of breakthrough research on mammalian reproductive physiology. Among its nearly 100 contributors are many of the investigators directly responsible for the field's spectacular progress in recent years. Topics throughout the Second Edition have been added, condensed, expanded, or completely revamped to reflect new findings on reproductive physiology, endocrinology, and reproductive behavior. The Second Edition provides extensive coverage of new research techniques; recent studies of interactions between hormones and genes; new findings on the structure of receptors; and newly identified endocrine and paracrine substances such as endothelins, interleukins, activins, inhibins, and prorenin. Included are accounts of the latest attempts to elucidate the neural mechanism underlying pulsatile secretion and identify the elusive pulse generator in the central nervous system.

This text/reference presents a unified treatment of vertebrate reproductive physiology and sexual interactions in the context of environmental responses. Stresses the ecology and evolution of wild species, integrating biochemical and genetic mechanisms with behavioral and environmental influences. Addresses sex determination, growth and development, parental care, fecundity, and seasonality. Presents results of many experimental studies and observations made in the wild. In addition to having a large number of citations (over 1400), this book is unique in its broad coverage, and in its effort to explain ecology and evolution in terms of known physiological processes.

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This series of volumes represents a comprehensive and integrated treatment of reproduction in vertebrates from fishes of all sorts through mammals. It is designed to provide a readable, coordinated description of reproductive basics in each group of vertebrates as well as an introduction to the latest trends in reproductive research and our understanding of reproductive events. Whereas each chapter and each volume is intended to stand alone as a review of that topic or vertebrate group, respectively, the volumes are prepared so as to provide a thorough topical treatment across the vertebrates. Terminology has been standardized across the volumes to reduce confusion where multiple names exist in the literature, and a comprehensive glossary of these terms and their alternative names is provided. A complete, essential and up to date reference for research scientists working on vertebrate hormones and reproduction - and on animals as models in human reproductive research Covers the endocrinology, neuroendocrinology, physiology, behaviour and anatomy of vertebrate reproduction Structured coverage of the major themes for

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all five vertebrate groups allows a consistent treatment for all Special chapters elaborate on features specific to individual vertebrate groups and to comparative aspects, similarities and differences between them

The 3rd edition, the first new one in ten years, includes coverage of molecular levels of detail arising from the last decade's explosion of information at this level of organismic organization. There are 5 new Associate Editors and about 2/3 of the chapters have new authors. Chapters prepared by return authors are extensively revised. Several new chapters have been added on the topic of pregnancy, reflecting the vigorous investigation of this topic during the last decade. The information covered includes both human and experimental animals; basic principles are sought, and information at the organismic and molecular levels are presented. \*The leading comprehensive work on the physiology of reproduction\* Edited and authored by the world's leading scientists in the field\* Is a synthesis of the molecular, cellular, and organismic levels of organization\* Bibliographics of chapters are extensive and cover all the relevant literature

Since the appearance of the second edition of Sydney A. Asdell's widely used *Patterns of Mammalian Reproduction* in 1964, the field of reproductive physiology has expanded dramatically. Accordingly, this revision adopts a different structure from previous editions, substituting empirical delineations for physiological interpretations. With the emphases now on a presentation of the published facts of mammalian reproduction, it provides a thorough compilation of what is known about the basic reproductive biology of each of the 4300 mammalian species. To gather information, the authors examined more than 20,000 publications, dating up to 1992. They used primary sources as much as possible, supplementing them with English translations of Russian, Finnish, Chinese, and Japanese journals. The data are presented in taxonomic order. Each familial account summarizes the pattern of reproduction for the family and provides lists of citations arranged by topic of the literature on the endocrinology, reproductive anatomy, and reproductive physiology of the family. Following each account is a tabular listing of species-specific data for neonatal mass and size, weaning mass and size, litter size, age at sexual maturity, estrous cycle length, gestation length, lactation length, number of litters per year, and seasonality of reproduction. For each of these reproductive variables, the range of data gleaned from the literature is given, together with the source of each value listed. Virginia Hayssen is Assistant Professor of Biology at Smith College. Ari Van Tienhoven is Professor of Animal Physiology, Emeritus, at Cornell University. Ans Van Tienhoven assisted in the compilation of data for the book.

*Reproductive Physiology of Mammals: From Farm to Field and Beyond* explores the fundamental principles of mammalian reproductive biology in the context of a society that values the management of the reproductive activity of human and nonhuman animals. The format of the book is compatible with traditional approaches to teaching courses in reproductive physiology, but emphasizes basic biological principles and comparative analyses of reproductive physiology. This departure from tradition is intended to accommodate students' growing interests in companion and wild animals and provide expertise that allows students to pursue careers that require literacy in basic science.

*The Reproductive Biology of Bats* presents the first comprehensive, in-depth review of the current knowledge and supporting

literature concerning the behavior, anatomy, physiology and reproductive strategies of bats. These mammals, which occur world-wide and comprise a vast assemblage of species, have evolved unique and successful reproductive strategies through varied anatomical and physiological specialization. These are accompanied by individual and/or group behavioral interactions, usually in response to environmental mechanisms essential to their reproductive success. Is the first book devoted to the reproductive biology of bats Contains in-depth reviews of the literature concerned with bat reproduction Contributors are widely recognized specialists Provides a powerful database for future research

The most comprehensive review available today, Marshall's Physiology of Reproduction is the classic reference source for teachers and researchers of animal reproduction. Internationally recognised leaders in their respective fields provide an analytical synopsis of the area, review current research and outline their philosophical approach to the subject. Volume 3 of the fourth edition reviews the processes of pregnancy and lactation in mammals, incorporating marsupials, non-primate eutherians and primates including man. Book one covers pregnancy from ovulation to pre-parturition, book two reviews fetal physiology, parturition and lactation. The extensive coverage of the physiology of human reproduction and lactation makes this volume a particularly important reference source for researchers in human fertility control, while the review of large animal reproduction is relevant to veterinary and para-veterinary workers.

Mammals are the so-called "pinnacle" group of vertebrates, successfully colonising virtually all terrestrial environments as well as the air (bats) and sea (especially pinnipeds and cetaceans). How mammals function and survive in these diverse environments has long fascinated mammalogists, comparative physiologists and ecologists. Ecological and Environmental Physiology of Mammals explores the physiological mechanisms and evolutionary necessities that have made the spectacular adaptation of mammals possible. It summarises our current knowledge of the complex and sophisticated physiological approaches that mammals have for survival in a wide variety of ecological and environmental contexts: terrestrial, aerial, and aquatic. The authors have a strong comparative and quantitative focus in their broad approach to exploring mammal ecophysiology. As with other books in the Ecological and Environmental Physiology Series, the emphasis is on the unique physiological characteristics of mammals, their adaptations to extreme environments, and current experimental techniques and future research directions are also considered. This accessible text is suitable for graduate level students and researchers in the fields of mammalian comparative physiology and physiological ecology, including specialist courses in mammal ecology. It will also be of value and use to the many professional mammalogists requiring a concise overview of the topic.

This monograph explains the physiological, biochemical and behavioral processes of male bat reproduction. Chapters cover spermatogenesis, sperm ultrastructure, reproductive homeostasis, apoptotic processes, sperm maturation, sperm storage in female bats, and sexual selection processes. The volume also presents studies focused on the reproductive physiology of Mexican cave bat species. This monograph is a suitable reference for undergraduate and postgraduate students as well as researchers interested in chiropteran reproductive biology.

The Fourth Edition of Knobil & Neill continues to serve as a reference aid for research, to provide the historical context to current research, and most importantly as an aid for graduate teaching on a broad range of topics in human and comparative reproduction. In the decade since the publication of the last edition, the study of reproductive physiology has undergone monumental changes. Chief among these advances are in the areas of stem cell development, signaling pathways, the role of inflammation in the regulatory processes in the various tissues, and the integration of new animal models which have led to a greater understanding of human disease. The new edition synthesizes all of this new information at the molecular, cellular, and organismal levels of organization and present modern physiology a more understandable and comparative context. The Fourth Edition has been extensively revised, reflecting new fundamental advancements in this rapidly advancing field. Provides a common language for researchers across the fields of physiology, endocrinology, and biology to discuss their understanding of reproduction. Saves academic researchers time in quickly accessing the very latest details on reproductive physiology, as opposed to searching through thousands of journal articles.

This book is a completely revised and updated second edition of a highly praised volume that was first published in 1968. Taking into account recent conceptual and technical advances, the new edition examines and compares the reproductive mechanisms of different classes of vertebrates, from cyclostomes to humans, in a thorough and analytic manner. Ari van Tienhoven is a uniquely qualified scientist with many years of research and teaching experience. His fourteen chapters cover sex determination, sexual development, intersexes, puberty, anatomy of the reproductive system, the testes, the ovary, reproductive cycles, insemination and fertilization, care of the embryo and fetus, expulsion of the oocyte, embryo, or fetus, reproduction and immunology, reproductive behavior, and environment and reproduction. The author emphasizes the role of the H-Y antigen in determining the sex of animals and gives particular attention to the evolutionary aspects of intersexes in fish. He discusses the endocrinology of reproduction, and he also deals with the role of light in controlling the timing of reproductive activity. Many illustrations, tables, and references are included. An important contribution to the fields of comparative endocrinology and reproduction, this book will be a valuable text for advanced undergraduate and graduate students and an irreplaceable reference for zoologists in general and for specialists in reproductive physiology.

Advances in Comparative Physiology and Biochemistry, Volume 4, presents five papers on the different aspects of comparative physiology. The first two studies deal with movement. The first examines the effects of environmental conditions on the motile behavior of amoebas. The second investigates the mechanisms and coordination of cellular movement. The third study on the endocrine functions of the hypothalamus in the fishes, amphibians, and reptiles provides the comparative endocrinologist with a basis for integrating the state of knowledge on non-mammalian and mammalian function of this organ complex. The fourth study deals with the central and peripheral control of arthropod movements. The final study surveys the comparative physiology of populations of gametes. Aside from providing readers

with a comparative vista of reproductive physiology from a unique perspective, it introduces a new hypothesis on the overproduction of gametes commonly found in living organisms — a hypothesis which may have far-reaching consequences for the interpretation of the reproductive process.

The revised, updated Second Edition of this classic work is a masterful distillation of breakthrough research on mammalian reproductive physiology. Among its nearly 100 contributors are many of the investigators directly responsible for the field's spectacular progress in recent years. Topics throughout the Second Edition have been added, condensed, expanded, or completely revamped to reflect new findings on reproductive physiology, endocrinology, and reproductive behavior. The Second Edition provides extensive coverage of new research techniques; recent studies of interactions between hormones and genes; new findings on the structure of receptors; and newly identified endocrine and paracrine substances such as endothelins, interleukins, activins, inhibins, and prorenin. Included are accounts of the latest attempts to elucidate the neural mechanism underlying pulsatile secretion and identify the elusive pulse generator in the central nervous system.

The biology of sex; The structure of the male and female reproductive systems; The endocrinology of reproduction; Reproduction in females; Ovarian follicles, ovulation, and corporea lutea; Hormone of reproduction; Reproduction in males; The germam cells; The young embryo; Efficiency of reproduction; Pregnancy, parturition, and lactation; Fertility and sterility.

For South American wild mammals, assisted reproductive techniques (ARTs) have been established in accordance with the procedures used for domestic mammals. However, often, it is not possible to infer the experimental conditions from one species to another. In general, the use of these ARTs aims the conservation of the animal genetic material, using gamete manipulation, embryo technology by in vivo or in vitro methods, and cloning. In all animals, the previous knowledge of reproductive physiology becomes the starting point for the use of ARTs in the expansion of all species of interest. In this sense, the purpose of this chapter is to develop an approach of theoretical, technical, and applied aspects of the ARTs in South American wild mammals, with emphasis on the state-of-the-art and its progress and perspectives. Marsupials differ from most other mammals in their method of reproduction, in that they have chosen, in an evolutionary sense, to develop lactation rather than placentation for the nurture of their young. The neonate is therefore born with a mixture of advanced and embryonic characters, and yet is readily accessible within the pouch, providing a unique system for the study of the ontogeny of various physiological and endocrinological parameters. Marsupials are therefore ideal animals for research into mammalian reproductive physiology. The results of this exciting new research are summarized in this book by two of the foremost workers in the field. Individual chapters analyse the genetic and hormonal control of

sexual differentiation, male and female reproductive structures and their functions, the role of the corpus luteum in the oestrous cycle and pregnancy, the hormonal control of embryonic diapause and the role of the marsupial placenta in the development of the embryo. This book is more than just a straightforward review of marsupial reproduction for its detailed analyses and broad comparative coverage will attract mammalogists and reproductive physiologists with a wide range of research interests.

The results of this compilation of new research on the reproductive physiology of marsupials reveal much about their patterns of reproduction and evolution in comparison to monotremes and eutherians.

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This multi-disciplinary approach to conservation of endangered species in captivity is organized taxonomically and by scientific discipline. The seven taxonomic groups included are invertebrates; fish, reptiles and amphibians, birds, marine mammals, primates, and other mammals. Within each taxonomic group, four scientific disciplines are explored: conservation, reproductive physiology, behavior, and captive design. Conservation chapters summarize the status of the taxonomic group both in the wild and in captivity. Reviewed in the reproductive physiology chapters are anatomy, endocrinology and physiology for females and males of the taxonomic group. In the section on behavior the functions of captive animal research, the methods used, and the problems encountered are discussed. And, in examining captive design the authors provide a general historical outline of the philosophies, trends, and scientific issues for the targeted taxonomic group.

"Newborn mammals can weigh as little as a dime or as much as a motorcycle. Some receive milk for only a few days, whereas others nurse for years. Humans typically have only one baby at a time following nine months of pregnancy, but other mammals have 20 or more young after only a few weeks in utero. What causes this incredible reproductive diversity? Reproduction in Mammals is a fascinating examination of the diverse reproductive strategies of a broad spectrum of mammals and the ways in which natural selection has influenced that diversity. While accounts of reproduction in individual taxa abound, this unique book's comprehensive coverage gathers stories from many taxa into a single, cohesive perspective that centers on the reproductive lives of females. The authors shed light on intriguing questions such as: Do bigger moms have bigger babies? Do primates have longer pregnancies than other groups? Do aquatic animals have particular patterns? Do carnivores like lions often produce larger litters than prey species? The book opens with the authors' definition of what constitutes a female perspective and an examination of the evolution of reproduction in mammals. It then outlines the individual female: her genetics, anatomy, and physiology. From this nuanced basis, the text progresses to mirror the female reproductive cycle and includes her interactions with males and offspring. The final section contextualizes the reproductive cycle within the rest of the world--both abiotic and biotic environments. To close, the authors include dedicated chapters on human concerns: conservation and women as mammals. Readers will come away from

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this thought-provoking book with an understanding not only of how reproduction fits into the lives of female mammals but also of how biology has affected the enormously diverse reproductive patterns of the phenotypes we observe today."-- Provided by publisher.

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