

# Marine Mammals Evolutionary Biology

Marine Mammals Encyclopedia of Evolutionary Biology Mammalian Evolutionary Morphology The Origin and Evolution of Mammals Mammalian Evolution, Diversity and Systematics Evolution of Island Mammals Mammalian Evolution, Diversity and Systematics The Rise of Marine Mammals Robustness, Plasticity, and Evolvability in Mammals Marine Mammal Biology Studies in the Evolution of Animals The Unity of Evolutionary Biology Outlines of Evolutionary Biology Mammals from the Age of Dinosaurs The Soviet Journal of Developmental Biology Journal of Mammalogy Mammalian Biology in South America The Origin and Evolution of Mammals The Tiffanian Land-mammal Age (middle and Late Paleocene) in the Northern Bighorn Basin, Wyoming A Manual of Mammalogy, with Keys to Families of the World Annalisa Berta Eric J. Sargis T. S. Kemp Frank Zachos Alexandra van der Geer Frank Zachos Annalisa Berta Clara B. Jones A. Rus Hoelzel Emanuel Bonavia Elizabeth Corning Dudley Arthur Dendy Zofia Kielan-Jaworowska Michael A. Mares Thomas Stainforth Kemp Ross Secord Anthony F. DeBlase

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marine mammals evolutionary biology third edition is a succinct yet comprehensive text devoted to the systematics evolution morphology ecology physiology and behavior of marine mammals earlier editions of this valuable work are considered required reading for all marine biologists concerned with marine mammals and this text continues that tradition of excellence with updated citations and an expansion of nearly every chapter that includes full color photographs and distribution maps comprehensive up to date coverage of the biology of all marine mammals provides a phylogenetic framework that integrates phylogeny with behavior and ecology features chapter summaries further readings an appendix glossary and an extensive bibliography exciting new color photographs and additional distribution maps

encyclopedia of evolutionary biology four volume set is the definitive go to reference in the field of evolutionary biology it provides a fully comprehensive review of the field in an easy to search structure under the collective leadership of fifteen distinguished section editors it is comprised of articles written by leading experts in the field providing a full review of the current status of each topic the articles are up to date and fully illustrated with in text references that allow readers to easily access primary literature while all entries are authoritative and valuable to those with advanced understanding of evolutionary biology they are also intended to be accessible to both advanced undergraduate and graduate students broad topics include the history of evolutionary biology population genetics quantitative genetics speciation life history evolution evolution of sex and mating systems evolutionary biogeography evolutionary developmental biology molecular and genome evolution coevolution phylogenetic methods microbial evolution diversification of plants and fungi diversification of animals and applied evolution presents fully comprehensive content allowing easy access to fundamental information and links to primary research contains concise articles by leading experts in the field that ensures current coverage of each topic provides ancillary learning tools like tables illustrations and multimedia features to assist with the comprehension process

this book celebrates the contributions of dr frederick s szalay to the field of mammalian evolutionary morphology professor szalay is a strong advocate for biologically and evolutionarily meaningful character analysis he has published about 200 articles six monographs and six books on this subject this book features subjects such as the evolution and adaptation of mammals and provides up to date articles on the evolutionary morphology of a wide range of mammalian groups

mammals are the dominant large animals of today occurring in virtually every environment this book is an account of the remarkable 320 million year long fossil record that documents their origin their long spell as no more than small nocturnal creatures and their explosive radiation since the extinction of the dinosaurs 65 million years ago tom kemp also unveils the exciting molecular evidence which coupled with important new fossils is presently challenging current thinking on the interrelationships and historical biogeography of mammals the origin and evolution of mammals will be of interest to advanced undergraduate and graduate students as well as researchers in vertebrate palaeontology biogeography mammalian systematics and molecular taxonomy it will also be welcomed by vertebrate fossil enthusiasts and evolutionary biologists of all levels with an interest in macroevolutionary problems

there are nearly 6 000 mammalian species among them our own research on our evolutionary cousins has a long history but the last 20 years have seen particularly rapid progress in disentangling the interrelationships and evolutionary history of mammals the present volume combines up to date reviews on mammalian phylogenetics with paleontological taxonomic and evolutionary chapters and also summarizes the historical development of our insights in mammalian relationships and thus our own place in the tree of life our book places the present biodiversity crisis in context with one in four mammal species threatened by extinction and reviews the distribution and conservation of mammalian diversity across the globe this volume is the introductory tome to the new mammalia series of the handbook of zoology and will be essential reading for mammalogists zoologists and conservationists alike

evolution of island mammals evolution on islands differs in a number of important ways from evolution on mainland areas over millions of years of isolation exceptional and sometimes bizarre mammals evolved on islands such as pig sized elephants and hippos giant rats and gorilla sized lemurs that would have been formidable to their mainland ancestors evolution of island mammals second edition provides an updated and expanded overview of the current knowledge on fossil island mammals worldwide ranging from the oligocene to the onset of the holocene the book addresses evolutionary processes and key aspects of insular mammal biology exemplified by a variety of fossil species readers familiar with the first edition will find here a host of updated and enhanced material including an entirely new chapter on the island rule updated and expanded theoretical chapters updated and improved taxonomic information extensive coverage of new discoveries body masses or body size indices for most extinct island mammals new figures visualizing the richness of the fossil record this accessible and richly illustrated textbook is written for graduate level students and professional researchers in evolutionary biology palaeontology biogeography zoology and ecology

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a compelling look at the evolutionary history of marine mammals over the past 50 million years marine mammals have long captured the attention of humans ancient peoples etched seals and dolphins on the walls of paleolithic caves today engineers develop microprocessors to track these denizens of the deep this groundbreaking book from highly respected marine mammal paleontologist annalisa berta delves into the story of the extraordinary adaptations that gave the world these amazing animals the rise of marine mammals reveals remarkable fossil record discoveries that shed light on the origins relationships and diversification of marine mammals focusing on evolution and paleobiology berta provides an overview of marine mammal species diversity enhanced with gorgeous life restorations by carl buell robert boessenecker william stout and ray troll and extensive line drawings by graphics editor james l sumich the book also considers ongoing conservation challenges demonstrating how the fossil record of adaptation in response to past environmental shifts may illuminate the way that marine mammals respond to global climate change this invaluable evolutionary framework is essential for helping us understand how best to protect and conserve today s polar bears whales dolphins seals and fellow warm blooded ocean dwellers the rise of marine mammals also describes exciting breakthroughs that rely on new techniques of study including 3 d imaging and molecular finite element and morphometric analyses which have enhanced scientists understanding of everything from the anatomy of fetal whales to the genes behind limb loss in cetaceans mammalogists paleontologists and marine scientists will find berta s insights absorbing while developmental and molecular biologists geneticists and ecologists exploring integrative research approaches will benefit from her fresh perspective

among the unresolved topics in evolutionary biology and behavioral ecology are the origins mechanisms evolution and consequences of developmental and phenotypic diversity in an attempt to address these challenges plasticity has been investigated empirically and theoretically at all levels of biological organization from biochemical to whole organism and beyond to the population community and ecosystem levels less commonly explored are constraints e.g. ecological costs e.g. increased response error perturbations e.g. alterations in selection intensity and stressors e.g. resource limitation influencing not only selective values of heritable phenotypic components but also decisions and choices not necessarily conscious ones available to individuals in populations treating extant mammals the primary purpose of the proposed work is to provide new perspectives on common themes in the literature on robustness functional diversity differential resistance to deconstraint of conserved elements and weak robustness the potential to restrict plasticity and evolvability plasticity variation expressed throughout the lifetimes of individuals in a population setting evolvability potential and evolvability non lethal phenotypic novelties induced by endogenous and or exogenous stimuli the proposed project will place particular emphasis upon the adaptive complex in relation to endogenous e.g. genomes neurophysiology and exogenous abiotic and biotic including social environments organismal features discussed as regulatory and environmental perturbations with the potential to induce and often constrain variability and novelty of form and function

this book provides a general introduction to the biology of marine mammals and an overview of the adaptations that have permitted mammals to succeed in the marine environment each chapter written by experts in their field will provide an up to date review and present the major discoveries and innovations in the field important technical advances such as satellite telemetry and time depth recorders will be described in boxes

the fossil record on mesozoic mammals has expanded by orders of magnitude over the past quarter century new specimens some of them breathtakingly complete have been found in nearly all parts of the globe at a rapid pace coupled with the application of new scientific approaches and techniques these exciting discoveries have led to profound changes in our interpretation of early mammal history mesozoic mammals have come into their own as a rich source of information for evolutionary biology their record of episodic successive radiations speaks to the pace and mode of evolution early mammals were small but they provide key information on the morphological transformations that led to modern mammals including our own lineage of placentalia significant and fast evolving elements of the terrestrial biota for much of the mesozoic early mammals have played an increasingly important role in studies of paleoecology faunal turnover and historical biogeography the record of early mammals occupies center stage for testing molecular evolutionary hypotheses on the timing and sequence of mammalian radiations organized according to phylogeny this book covers all aspects of the anatomy paleobiology and systematics of all early mammalian groups in addition to the extant mammalian lineages extending back into the mesozoic

translation of ontogeny a publication of the academy of sciences of the u s s r

this volume is intended not only to review much of the research that has been done on south american mammals but to stimulate future research on the continent

the synapsida are the mammal like reptiles and mammals a group that diverged from a common ancestor shared with reptiles and birds about 340 million years the fossil record of the synapsids is extraordinarily good and documents the three phases of the history of the group each one of which points to important evolutionary generalisations as well as relating an intrinsically fascinating story the first stage leads from the origin of the group to the earliest mammals the non mammalian synapsids constituted the first radiation of fully terrestrial vertebrates dominating the land long before the dinosaurs displaced them and took over that role the fossil record illustrates the relationship between this radiation and the environmental conditions of the permo triassic when it occurred it also illustrates to a far greater degree than any other fossil record the origin of a major new taxon the sequence of acquisition of mammalian structures and functions inferred from the fossils leads to an interpretation about the processes involved in the evolution of mammalian biological organisation the second stage is the mesozoic history of mammals throughout the jurassic and cretaceous periods mammals remained small insectivorous or omnivorous animals living a nocturnal existence they were abundant and diverse but failed completely to evolve into any of the middle sized and large sized forms familiar amongst today s mammals this is usually though not completely satisfactorily explained by competitive exclusion by dinosaurs the third stage is the great cenozoic radiation of mammals from the moment the dinosaurs disappeared 65 million years ago new kinds of mammals proceeded to evolve medium and large bodied herbivore and carnivore groups appeared early and from then onwards a kaleidoscope of origins flourishings and extinctions of lineages of mammals took place this great story interweaves changing climates shifting continents ecological opportunities and the fulfilment of the adaptive potential of mammalia the latest molecular evidence that is having a huge impact on ideas about the timing and origins of the modern mammalian taxa is discussed along with the fossil evidence the book reviews these three stages in turn bringing up to date the palaeontological evidence and incorporating the molecular taxonomic data that has been rapidly accumulating over the last few years and which is responsible for a series of exciting radical new ideas about relationships amongst mammals and their inferred palaeo biogeographic history

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