

**NEW PERSPECTIVES
IN SPONGE BIOLOGY**

Klaus Rützler

New Perspectives In Sponge Biology

J.G. Burgess, R. Osinga, R.H. Wijffels



New Perspectives In Sponge Biology:

New perspectives in sponge biology, 1990 *Advances in Sponge Science: Phylogeny, Systematics, Ecology*, 2012-09-01

On of two special issues of *Advances in Marine Biology* focusing on sponge science it features comprehensive reviews of the latest studies that are advancing our understanding of the fascinating marine phylum Porifera The selected contributors are internationally renowned researchers in their respective fields and provide a thorough overview of the state of the art of sponge science This volume will become a reference to marine biologists with interest in benthic ecology and biotic interactions including symbiosis chemical and molecular ecology systematics phylogeny and evolution sponge culture and tissue engineering na Alexander V. Ereskovsky, 2010-09-08 One of the major questions in the evolution of animals is the transition from unicellular to multicellular organization which resulted in the emergence of Metazoa through a hypothetical Urmetazoa The *Comparative Embryology of Sponges* contains abundant original and literary data on comparative embryology and morphology of the Porifera Sponges a group of lower Metazoa On the basis of this material original typization of the development of Sponges is given and the problems concerning origin and evolution of Porifera and their ontogenesis are discussed A morphogenetic interpretation of the body plan development during embryogenesis metamorphosis and asexual reproduction in Sponges is proposed Special attention is given to the analysis of characteristic features of the ontogenesis in Porifera The book pursues three primary goals 1 generalization of all existing information on individual development of sponges its classification and a statement according to taxonomical structure of Porifera 2 revealing of heterogeneity of morphogenesis and peculiarities of ontogeneses in various clades of Porifera and also their correlations with the organization both adult sponges and their larvae 3 revealing homology of morphogeneses in both Porifera and Eumetazoa testifying to the general evolutionary roots of multicellular animals and peculiar features of sponges morphogeneses and ontogenesis This book will be of interest to embryologists zoologists morphologists and researchers in evolutionary biology *Frontiers in Invertebrate Physiology: A Collection of Reviews* Saber Saleuddin, Sally P. Leys, Robert D. Roer, Iain C. Wilkie, 2024-02-13 This new 3 volume set provides informative reviews on the physiology of sponges cnidarians round and flat worms annelids echinoderms and crustaceans advancing our knowledge of the physiology of these major invertebrate groups Phyla Invertebrates exhibit the largest number of species and occupy virtually every conceivable ecological niche They are economically important in food chains they recycle organic waste and they are crucial pollinators of plants and sources of food They are also medically relevant as parasites that cause major diseases in both humans and livestock Volume 1 looks at non Bilaterians sponges cnidarians placozoans The focus on sponge biology has recently been on symbiosis nutrient uptake and sensory biology The section on cnidarians covers biomineralization the nervous system and development The biology of placozoans is described in depth including the role of neuropeptides in feeding Volume 2 and covers crustacean physiology and diverse physiological topics ranging from molting respiration water balance

biomineralization bioreceptors and temperature regulation to the land adaptation of terrestrial crustaceans Echinoderms and annelids are covered in Volume 3 *Species Diversity of Animals in Japan* Masaharu Motokawa, Hiroshi Kajihara, 2016-11-26

This book summarizes the status quo of the knowledge about the biodiversity in terrestrial freshwater and marine animals that live in Japan Consisting of some 6 800 islands that are arrayed for approximately 3 500 km from north to south the Japanese archipelago has a complex history in a paleogeographic formation process over time and harbors rich flora and fauna This work will contribute to establishing a general biogeographic theory in archipelagoes around continental shelves Facing the ongoing extinction crisis one of the most important tasks for our generation is to bequeath this precious natural heritage to future generations As the first step toward this goal a species list has been compiled through solid steady alpha taxonomic work in each taxon Furthermore the phylogeography and population genetic structure for each species is elucidated for deeper understanding of the local fauna the scientific results of which should be the basis for establishing conservation policies and strategies Also the problem of alien or introduced species is investigated as another threat to the native fauna Each of the 27 chapters is written by the most active specialist leading the field thus readers can acquire up to date knowledge of the animal species diversity and their formation process of Japanese animals in the most comprehensive form available This book is recommended for researchers and students who are interested in species diversity biogeography and phylogeography **Fortschritte der Chemie organischer Naturstoffe / Progress in the Chemistry of Organic**

Natural Products, 2000-08-23 Glycosmis is a clearly defined genus within the tribe Clauseneae of the Aurantioideae subfamily of the family Rutaceae comprising about 40 species 1 Its range of distribution is centered in south and southeast Asia India Sri Lanka Myanmar Thailand Malaysia Indonesia and extends to south China and Taiwan as well as to New Guinea and north Australia Exceptions are only cultivated species like the Chinese *G. parvijiora* Sims Little formerly called *G. citrifolia* Willd Lindley which became naturalized in tropical America and Africa Angola 1 The shrubs or small trees are unarmed and possess pinnate or simple leaves with translucent punctate glands emitting an aromatic odor when crushed The axillary inflorescences are usually dispersed closed panicles with small white flowers The fruits are mostly pink reddish or white berries of about 1 cm in diameter with only one or two seeds The genus name Glycosmis originates from the sweet smell of the flowers and the sweet taste of the fleshy pericarp of the fruits A good field and herbarium character of the genus is that the buds of new leaves are usually covered with short rusty red hairs In spite of the good delimitation of Glycosmis from the other closely related Clauseneae genera Clausena Micromelum Murraya and Merrillia and the already existing subrevisionary treatment by Stone 1 there are still many unresolved taxonomic problems at the species level

Biomineralization Patricia M. Dove, James J. De Yoreo, Steve Weiner, 2018-12-17 Volume 54 of Reviews in Mineralogy and Geochemistry focuses upon the various processes by which organisms direct the formation of minerals Our framework of examining biominerals from the viewpoints of major mineralization strategies distinguishes this volume from most previous

reviews The review begins by introducing the reader to over arching principles that are needed to investigate biomineralization phenomena and shows the current state of knowledge regarding the major approaches to mineralization that organisms have developed over the course of Earth history By exploring the complexities that underlie the synthesis of biogenic materials and therefore the basis for how compositions and structures of biominerals are mediated or not we believe this volume will be instrumental in propelling studies of biomineralization to a new level of research questions that are grounded in an understanding of the underlying biological phenomena **Invertebrate Medicine** Gregory A.

Lewbart,2022-04-19 Winner of the Textbook Academic Authors Association 2024 McGuffey Longevity Award for Life Sciences Presented in full color for the first time Invertebrate Medicine is the definitive resource on husbandry and veterinary medicine in invertebrate species Presenting authoritative information applicable to both in human care and wild invertebrates this comprehensive volume addresses the medical care and clinical condition of most important invertebrate species providing biological data for sponges jellyfish anemones snails sea hares corals cuttlefish squid octopuses clams oysters crabs crayfish lobsters shrimp hermit crabs spiders scorpions horseshoe crabs honey bees butterflies beetles sea stars sea urchins sea cucumbers various worms and many other invertebrate groups The extensively revised third edition contains new information and knowledge throughout offering timely coverage of significant advances in invertebrate anesthesia analgesia diagnostic imaging surgery and welfare New and updated chapters incorporate recent publications on species including crustaceans jellyfishes corals honeybees and a state of the science formulary In this edition the authors also discuss a range of topics relevant to invertebrate caretaking including conservation laws and regulations euthanasia diagnostic techniques and sample handling Edited by a leading veterinarian and expert in the field Invertebrate Medicine Third Edition Provides a comprehensive reference to all aspects of invertebrate medicine Offers approximately 200 new pages of expanded content Features more than 400 full color images and new contributions from leading veterinarians and specialists for each taxon Includes updated chapters of reportable diseases neoplasia sources of invertebrates and supplies and a comprehensive formulary The standard reference text in the field Invertebrate Medicine Third Edition is essential reading for practicing veterinarians veterinary students advanced hobbyists aquarists and aquaculturists and professional animal caretakers in zoo animal exotic animal and laboratory animal medicine **Key Transitions in Animal Evolution**

Rob Desalle,Bernd Schierwater,2010-12-07 Tackling one of the most difficult and delicate of the evolutionary questions this challenging book summarizes the more recent results in phylogenetics and developmental biology that address the evolution of key innovations in metazoans Divided into three sections the first considers the phylogenetic issues involving this area of the tree of life **Invertebrates** Sajal Ray,Genaro Diarte-Plata,Ruth Escamilla-Montes,2020-01-22 Invertebrates exhibit a wide range of diversity in body plan physiology behaviour adaptation and preferences for habitat and food Their relationship with the environment is unique and multidimensional This book is organized into two sections containing chapters on the

frontier areas of research in ecophysiology and management related problems of various invertebrates Topics covered include hibernation physiology the amelioration potential of drug and parasitic host response of molluscs the genetics and biology of hydrocorals and current trends of management aquaculture and harvesting of ecologically and economically important molluscs and sponges This book is an enriched edition of invertebrate zoology and is a useful source of information for researchers and students in various disciplines In recent years a paradigm shift in research on invertebrates has occurred under the backdrop of climate change and environmental contamination This important shift in the research is well reflected in this book

Waiting for Aphrodite Sue Hubbell, 2000-05-03 In this fascinating book Hubbell journeys into the remarkable lives of the little known creatures that really run the world the animals without backbones including one of the most elusive and enigmatic of all Aphrodite the sea mouse

Climate Change, Ocean Acidification and Sponges José Luis Carballo, James J. Bell, 2017-10-27 While sponges represent a very simple group of organisms which are represented by over 8000 species there is considerable interest in the increasing role they may play in future marine ecosystems While we still have a comparatively limited understanding of how sponges will respond to ocean warming and acidification there is evidence that some species may have the ability to acclimate or even adapt to these stressors This comprehensive collection of articles describes our current understanding of the impacts of ocean acidification and warming on sponges across multiple levels of biological organisation and from the geological past to the present With expert contributions from across the world this book represents the most up to date view on sponge responses to climate change This book will be of interest to a wide audience of marine scientists and managers who are grappling with how to manage conserve and protect marine ecosystems

Systema Porifera John N.A. Hooper, Rob W.M. van Soest, 2012-12-06 Research whilst compiling this book has uncovered a fauna about twice the size as that previously published in the literature and consequently Systema Porifera revises and stabilizes the systematics of the phylum to accommodate this new knowledge in a contemporary framework Practical tools key illustrations descriptions of character are provided to facilitate the assignment of approximately 680 extant and 100 fossil genera Systema Porifera is unique making sponge taxonomy widely available at the practical level of classification genera families order It is a taxonomic revision of sponges and spongiomorphs such as sphinctozoans and archaeocythans based on re evaluation of type materials and evidence It is also a practical guide to sponge identification providing descriptions and illustrations of characters and interpretation of their importance to systematics Systema Porifera addresses many long standing nomenclatural problems and provides a sound baseline for future debate on sponges and their place in time and space Systema Porifera describes 3 classes 7 subclasses 24 orders 127 families and 682 valid genera of extant sponges with over 1600 nominal generic names and an additional 500 invalid names treated Treatment of the fossil fauna is less comprehensive or critical although 6 classes 30 orders 245 families and 998 fossil genera are mentioned Keys to all recent and many fossil taxa are provided

Economic valuation of ecosystem services provided by deep-sea sponges

Ottaviani, D.,2020-12-16 This report represents the first economic valuation of the ecosystem services provided by deep sea sponges in the North Atlantic It is based on information available in the scientific literature at the time of writing but also indicates the research areas where discoveries and research advances are shortly expected The report is aimed at a generic public with no specialized knowledge on sponges or on economic valuation It is outlined in a way to provide essential background information but makes reference to a comprehensive list of scientific publications for further insights Marine Bioprocess Engineering J.G. Burgess,R. Osinga,R.H. Wijffels,1999-11-19 This book contains full papers of both oral and poster presentations of the international symposium Marine Bioprocess Engineering which was held in Noordwijkerhout The Netherlands 1998 The symposium focused on the bioprocessing of marine natural products Bioprocess engineering has been the key to success in the commercialization of biotechnology especially with respect to biopharmaceuticals In marine biotechnology both new and existing biotechnological techniques are developed an applied to organisms from marine sources For marine biotechnology bioprocess engineering represents the link between discovery and commercialization The diversity of marine life points to a myriad of new bioproducts waiting to be discovered and developed commercially The volume begins to bridge the gap between the isolation of products from marine organisms in the laboratory and industrial applications by focusing on the bioprocess engineering aspects Reviews and recent developments in product discovery bio energy production cultivation of marine organisms scale up and product recovery are presented This publication should ensure that the engineering aspects of marine biotechnology will receive further attention in the future Exploration of new bioproducts from the ocean should be followed up by a sustainable exploitation of these valuable resources **The Pearl Oyster** Paul Southgate,John Lucas,2011-08-19 Contrary to a generally held view that pearls are found by chance in oysters almost all are now produced from farms This book is a comprehensive treatment of all aspects of the biology of pearl oysters their anatomy reproduction genetics diseases etc It considers how they are farmed from spawning and culturing larvae in hatcheries to adults in the ocean how various environmental factors including pollution affect them and how modern techniques are successfully producing large numbers of cultured pearls This is the ultimate reference source on pearl oysters and the culture of pearls written and edited by a number of scientists who are world experts in their fields Comprehensive treatment of pearl oyster biology and pearl culture Written by the top world authorities Highly illustrated and figured Of practical relevance to a broad readership from professional biologists to those involved in the practicalities and practice of pearl production *Fossil and Recent Sponges* Joachim Reitner,Helmut Keupp,2012-12-06 Fossil and Recent Sponges contains articles on taxonomic phylogenetic and ecological aspects of sponges of both biological and paleontological interest They focus on three main topics phylogeny and systematics biology and paleoecology of sponges The reader is offered an overview over the most important aspects of current sponge research establishment of a new taxonomy based on mono phyletic groups phylogenetic systematics including recent and fossil taxa new concepts of the biomineralisation of sponge skeletons

palaeoenvironmental analysis of fossil sponge buildups

Environmental Stressors and Gene Responses J.M.

Storey, K.B. Storey, 2000-07-31 Cell and Molecular Responses to Stress is a new multi volume book series from Elsevier Science that focuses on how organisms respond at a molecular level to environmental stresses imposed upon them. All organisms deal with variations in multiple environmental factors including temperature, oxygen, salinity, and water availability. Many show amazing tolerances to extreme stress with remarkable biochemical adaptations that allow life to persist under very difficult circumstances. This series explores the molecular mechanisms by which cells and organisms respond to stress, focusing on the variations in metabolic response that allow some cells and organisms to deal with extreme stress, others to endure stress within strict limits, and others to have a very low tolerance for changes in environmental parameters. Articles from within the series highlight the elastic limits of molecular responses in Nature with examples drawn from animal, plant, and bacteria systems. Volume 1 begins by considering some of the roles of environmental stress in determining the geographic distribution of animals and in promoting species divergence, and then explores gene expression and metabolic responses to environmental stress with examples of adaptation to high and low temperature, osmotic anoxia, ischemia, desiccation, high pressure, and heavy metal stresses.

Pathology and Epidemiology of Aquatic Animal Diseases for Practitioners Laura Urdes, Chris Walster, Julius Tepper, 2023-05-22 Comprehensive reference on the diseases and applied epidemiology of all aquatic animal taxa including invertebrates and vertebrates. *Pathology and Epidemiology of Aquatic Animal Diseases for Practitioners* provides information on the diseases and applied epidemiology of all aquatic animal taxa including invertebrates and vertebrates along with information on applied epidemiology, acknowledging the One Health concept and discussion on probabilities of disease outbreaks occurring and assesses the economic costs of treating those outbreaks if applicable. Divided into two sections, the book looks at the pathology of major aquatic taxa and their associated infectious diseases: parasitic, viral, and bacterial, and non-infectious diseases. Each includes an overview, their host range, and transmission signs and diagnosis, differentials, and treatment and management. These assets are accompanied by clinical signs, lesion differential charts. Sample topics discussed in *Pathology and Epidemiology of Aquatic Animal Diseases* include Echinoderms including crinoidea, crinoids, sea lilies, feather stars, and asteroidea, sea stars, starfish, and ophiuroidea, brittle stars, and basket stars; Reptiles including turtles, freshwater and marine crocodilians, marine iguanas, and sea snakes; Pinnipeds including otariidae, eared seals, odobenidae, walruses, phocidae, earless seals, mustelidae, otters, and sirenians, manatees, and dugongs; Tropical marine aquarium fish: damselfish, angelfish, gobies, wrasses, parrotfish, butterfly fish, and clownfish, and anemones. A highly useful reference for veterinary practitioners, academic staff, and researchers. *Pathology and Epidemiology of Aquatic Animal Diseases* is also suitable for those who are interested in aquatic veterinary medicine and serves as a companion to *Fundamentals of Aquatic Veterinary Medicine* written by the same editorial team.

Cave Ecology Oana Teodora Moldovan, Lubomír Kováč, Stuart Halse, 2019-01-05 Cave organisms are the monsters of the underground world and

studying them invariably raises interesting questions about the ways evolution has equipped them to survive in permanent darkness and low energy environments Undertaking ecological studies in caves and other subterranean habitats is not only challenging because they are difficult to access but also because the domain is so different from what we know from the surface with no plants at the base of food chains and with a nearly constant microclimate year round The research presented here answers key questions such as how a constant environment can produce the enormous biodiversity seen below ground what adaptations and peculiarities allow subterranean organisms to thrive and how they are affected by the constraints of their environment This book is divided into six main parts which address the habitats of cave animals their complex diversity the environmental factors that support that diversity individual case studies of cave ecosystems and of the conservation challenges they face all of which culminate in proposals for future research directions Given its breadth of coverage it offers an essential reference guide for graduate students and established researchers alike

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