

Ecological Studies 145

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G. Bauer K. Wächtler (Eds.)

# Ecology and Evolution of the Freshwater Mussels Unionoida



Springer

# Ecology And Evolution Of The Freshwater Mussels Unionoida

**JE Gale**



## **Ecology And Evolution Of The Freshwater Mussels Unionoida:**

Ecology and Evolution of the Freshwater Mussels Unionoida G. Bauer, 2001 All those who think that bivalves are boring are in the best company Karl von Frisch is reported to have turned the pages more quickly in texts where bivalves were treated because according to him they literally lack any behaviour The fact that they can filtrate huge amounts of water burrow into the sediment actively swim drill holes into rocks and boats or detect shadows with the aid of pretty blue eyes located on the rim of their mantle obviously left v Frisch unimpressed Why then a book on the large freshwater mussels Naiads or Unionoida which on first sight are much less spectacular than the marine ones The main reason is that they are keepers of secrets which they reveal only on close and careful inspection This is not only true for the pearls some species produce and which over centuries have contributed to the treasures of bishops and kings but particularly for their ecology their life cycles are linked with those of fishes some can occur in incredible densities and some can live for more than 100 years Thus the presence or absence of naiads in a lake or stream has manifold implications **North American**

**Freshwater Mussels** Wendell R. Haag, 2012-08-27 This well illustrated book highlights freshwater mussels fabulous diversity amazing array of often bizarre ecological adaptations and their dire conservation plight Summarizing and synthesizing historical and contemporary information as well as original research and analysis the book describes the diverse array of mussel life history strategies and builds a cohesive narrative culminating in the development of explicit frameworks to explain pervasive patterns in mussel ecology The fascinating and colorful role of mussels in human society is also described in detail including the little known pearl button industry of the early 1900s and the wild and often violent shell harvest of the 1990s The final chapter details humans efforts to save these fascinating animals and gives a prognosis for the future of the North American fauna The book provides the first comprehensive review of mussel ecology and conservation for scientists natural resource professionals students and natural history enthusiasts Evolutionary Ecology of Freshwater

Animals B. Streit, T. Städler, C.M. Lively, 2013-03-11 Evolutionary ecology includes aspects of community structure trophic interactions life history tactics and reproductive modes analyzed from an evolutionary perspective Freshwater environments often impose spatial structure on populations e.g. within large lakes or among habitat patches facilitating genetic and phenotypic divergence Traditionally freshwater systems have featured prominently in ecological research and population biology This book brings together information on diverse freshwater taxa with a mix of critical review synthesis and case studies Using examples from bryozoans rotifers cladocerans molluscs teleosts and others the authors cover current conceptual issues of evolutionary ecology in considerable depth The book can serve as a source of critically evaluated ideas detailed case studies and open problems in the field of evolutionary ecology It is recommended for students and researchers in ecology limnology population biology and evolutionary biology **Freshwater Mussels of Central America** Kevin S.

Cummings, Daniel L. Graf, John M. Pfeiffer, Jeremy S. Tiemann, 2025-09-17 This book describes a fauna of global conservation

concern and provides a framework for researchers to begin to test hypotheses regarding the evolution of freshwater mussels in Central America. Placing the Central American fauna in context with that of North and South America, the authors fill a gap in our knowledge of this endangered and largely endemic fauna. This book provides a full color treatment of all 81 native and introduced freshwater mussel species found from the Rio Grande in Texas, USA and Mexico to Colombia, South America. Includes 110 distribution maps of all species. Presents complete synonymies in every systematic species account. Offers historical information and bios of previous workers in the field. Cites complete literature and references on freshwater mussels in the region. Through photographs, distribution maps, and a complete list of species described and reported from Central America, *Freshwater Mussels of Central America* will inspire researchers to begin filling in the gaps regarding the systematics and ecology of freshwater mussels in Central America. It will be an essential source for conservationists, aquatic biologists, and those interested in the natural history of temperate and tropical freshwater ecosystems.

*Freshwater Mussel Propagation for Restoration* Matthew A. Patterson, Rachel A. Mair, Nathan L. Eckert, Catherine M. Gatenby, Tony Brady, Jess W. Jones, Bryan R. Simmons, Julie L. Devers, 2018-02-22. Freshwater mussels are declining rapidly worldwide. Propagation has the potential to restore numbers of these remarkable organisms, preventing extinction of rare species and maintaining the many benefits that they bring to aquatic ecosystems. Written by practitioners with firsthand experience of propagation programs, this practical book is a thorough guide to the subject, taking readers through the process from start to finish. The latest propagation and culture techniques are explored as readers follow freshwater mussels through their amazing and complex life cycle. Topics covered include the basics of building a culture facility, collecting and maintaining brood stock, collecting host species, infesting host species with larval mussels, collecting and culturing juvenile mussels, releasing juveniles to the wild, and post-release monitoring. This will be valuable reading for any biologist interested in the conservation of freshwater mussel populations.

**Ecology of Fresh Water** Alison Leadley Brown, 1971. Freshwater Ecology Gerry Closs, Barbara Downes, Andrew Boulton, 2009-04-01. Freshwater ecosystems are under increasing pressure as human populations grow and the need for clean water intensifies. The demand for ecologists and environmental managers who are trained in basic freshwater ecology has never been greater. Students and practitioners new to the field of freshwater ecology and management need a text that provides them with an accessible introduction to the key questions while still providing sufficient background on basic scientific methods. In *Freshwater Ecology*, Gerry Closs, Barbara Downes, and Andrew Boulton have written a text that meets the requirements of these students. Following an introduction to scientific methodology and its application to the study of ecology, several key concepts in freshwater ecology are reviewed using a wide range of scientific studies, from fundamental and applied ecological questions. Key ecological questions that are explored in a freshwater context include the role of animal dispersal and predators on freshwater community structure and the impact of pollutants and introduced species on freshwater ecosystems. This book represents the only freshwater ecology textbook that is specifically aimed at an

introductory level It will also be a useful primer for students who have not previously taken a specialized freshwater course but who require an accessible overview of the subject General reviews on the methods of science influence of scale and the main features of freshwater systems Coverage of several fundamental and applied ecological questions A logical structure in each chapter that builds from a general observation of an ecological pattern to an exploration of the various scientific approaches that can be used to investigate such patterns Suggested further reading lists for each chapter **Freshwater Ecology** Michael Jeffries, Derek Mills, 1995-05-09 A completely rewritten and expanded new edition of Introduction to Freshwater Ecology Building on the successful approach in that book it presents a comprehensive outline regarding the scientific principles of the topic Features fresh material on the use of ecological techniques for the management and conservation of lakes rivers and streams and the life they support *Evolutionary Ecology of Neotropical Freshwater Fishes* T.M. Zaret, 1984 Proceedings of the 1st International Symposium on Systematics and Evolutionary Ecology of Freshwater Fishes held at DeKalb Illinois USA June 14 18 1982 *Freshwater Ecology* Walter Dodds, Matt Whiles, 2002

**FRESHWATER ECOLOGY** GERRY. CLOSS, 2006 *Freshwater Ecology* Walter K. Dodds, 2002-03-21 Freshwater Ecology Concepts and Environmental Applications is a general text covering both basic and applied aspects of freshwater ecology and serves as an introduction to the study of lakes and streams Issues of spatial and temporal scale anthropogenic impacts and application of current ecological concepts are covered along with ideas that are presented in more traditional limnological texts Chapters on biodiversity toxic chemicals extreme and unusual habitats and fisheries increase the breadth of material covered The book includes an extensive glossary questions for thought worked examples of equations and real life problems Broad coverage of groundwaters streams wetlands and lakes Features basic scientific concepts and environmental applications throughout Includes many figures sidebars of fascinating applications and biographies of practicing aquatic ecologists Materials are presented to facilitate learning including an extensive glossary questions for thought worked examples of equations and real life problems Written at a level understandable to most undergraduate students with explanations of complex contemporary concepts in freshwater ecology described to promote understanding Featuring small chapters that mainly stand alone this book can be read in the order most suited to the specific application Report of the Institute of Freshwater Ecology For-- Institute of Freshwater Ecology (Great Britain)., **Ecology of North American Freshwater Fishes** Stephen T. Ross, 2013-06-01 The North American freshwater fish fauna is the most diverse and thoroughly researched temperate fish fauna in the world Ecology of North American Freshwater Fishes is the only textbook to provide advanced undergraduate and graduate students and researchers with an up to date and integrated view of the ecological and evolutionary concepts principles and processes involved in the formation and maintenance of this fauna Ecology of North American Freshwater Fishes provides readers with a broad understanding of why specific species and assemblages occur in particular places Additionally the text explores how individuals and species interact with each other

and with their environments how such interactions have been altered by anthropogenic impacts and the relative success of efforts to restore damaged ecosystems This book is designed for use in courses related to aquatic and fish ecology fish biology ichthyology and related advanced ecology and conservation courses and is divided into five sections for ease of use Chapter summaries supplemental reading lists online sources extensive figures and color photography are included to guide readers through the material and facilitate student learning Part 1 Faunal origins evolution and diversity Presents a broad picture both spatially and temporally of the derivation of the fauna including global and regional geological and climatological processes and their effects on North American fishes Part 2 Formation maintenance and persistence of local populations and assemblages Focuses on how local fish populations and assemblages are formed and how they persist or not through time Part 3 Form and function Deals with the relationship of body form and life history patterns as they are related to ecological functions Part 4 Interactions among individuals and species Discusses the numerous interactions among individuals and species through communication competition predation mutualism and facilitation Part 5 Issues in conservation Focuses on several primary conservation issues such as flow alterations and the increasing biotic homogenization of faunas

**Ecology of Fresh Waters** Brian R. Moss, 2009-07-15 This established textbook continues to provide a comprehensive and stimulating introduction to rivers lakes and wetlands and was written as the basis for a complete course on freshwater ecology Designed for undergraduate and early postgraduate students who wish to gain an overall view of this vast subject area this accessible guide to freshwater ecosystems and man's activities will also be invaluable to anyone interested in the integrated management of freshwaters The author maintains the tradition of clarity and conciseness set by previous editions and the text is extensively illustrated with photographs and diagrams Examples are drawn from the author's experience in many parts of the world In this edition the scientific content of the text has been fully revised and updated Emphasis has been placed on human impacts and a completely new chapter has been added on the future of freshwaters

Balanced and stimulating introduction to limnology Successfully combines fundamental and applied aspects of integrated management of freshwaters with strong emphasis on human links Completely revised and rewritten with a threefold increase in the number of illustrations New chapter on the future of freshwaters Of interest to undergraduates beginning postgraduates and any limnologically interested reader

Freshwater Ecology Walter K. Dodds, Matt R. Whiles, 2019-04-03 Freshwater Ecology Third Edition covers everything from the basic chemical and physical properties of water to the advanced and unifying concepts of community ecology and ecosystem relationships found in continental waters Giving students a solid foundation for both courses and future fieldwork and updated to include key issues including how to balance ecological and human health needs GMOs molecular tools fracking and a host of other environmental issues this book is an ideal resource for both students and practitioners in ecology and related fields Winner of a 2020 Textbook Excellence Award College Texty from the Textbook and Academic Authors Association Provides an updated revision of this classic text covering

both basic scientific concepts and environmental applications Includes additional biography boxes with greater cultural diversity of the featured scientists Covers expanded content on developing nations ecosystem goods and services properties of water global change impacts of fracking molecular tools for classification and identification of aquatic organisms a discussion of emergent diseases and aquatic habitats and more Freshwater Ecology Alison Leadley Brown,1987-01-01

**Freshwater Ecology** Thomas Townley Macan,1974 Systematics, Historical Ecology, and North American Freshwater Fishes Richard L. Mayden,1992 This book addresses the current need for a holistic approach in comparative and evolutionary biology and offers numerous applications of the modern methods of phylogenetic systematics and historical ecology using the North American fish fauna as its case study This major synthesis the first published work of its kind provides a theoretical and methodological foundation for future studies in ichthyology evolutionary biology and other fields of comparative biology Several introductory pieces present major statements of general principles detailed examinations of the diversity and distributions of North American freshwater fishes and what is known of their systematic relationships The rest of the volume s 30 papers then contribute new phylogenetic hypotheses for a significant number of taxa Along the way the reader is introduced to the principles first of phylogenetic systematics the reconstruction of evolutionary or ancestor descendant relationships of groups of organisms on the basis of heritable traits and second of historical ecology a comprehensive research program that links systematics with many areas of comparative biology Together the two allow for the formulation of direct and testable hypotheses regarding the evolution of species and their attributes interspecies interactions and the formation and persistence of biotic communities Without these methods that incorporate historical controls our estimates of history for all areas of biology are inefficient indirect and worst of all untestable This book focuses on North American freshwater fishes not only because the 42 contributors know them so well but also because this highly diverse fauna is well known in so many important aspects diversity species distributions life histories relevant to evaluating general applications of the new paradigms of systematics and historical ecology Many other faunas present interesting biotas appropriate for the preparation of a similar piece of work but no other fauna can claim as complete a knowledge base The theme articulated throughout the book underscores the Darwinian proposition of descent with modification The biological information particular to the North American freshwater fish fauna establishes an invaluable foundation for understanding diversification and advancing education and research Moreover the methods theories and empirical data presented serve as essential resources for comparative and evolutionary research programs applicable to any biota or taxonomic grouping The book includes some 200 illustrations 60 tables 10 appendixes and comprehensive taxonomic and subject indexes BOOK JACKET Title Summary field provided by Blackwell North America Inc All Rights Reserved Natural History and Propagation of Fresh-Water Mussels R E Coker,A F Shira,H W Clark,2022-10-27 This work has been selected by scholars as being culturally important and is part of the knowledge base of civilization as we know it This work is in the public domain in the United

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