

Sex, Color, and Mate Choice in Guppies

ANNE E. HOUDE



MONOGRAPHS IN BEHAVIOR AND ECOLOGY

Sex Color And Mate Choice In Guppies

Magnus Enquist, Stefano Ghirlanda



Sex Color And Mate Choice In Guppies:

Sex, Color, and Mate Choice in Guppies Anne E. Houde, 1997-08-24 This book describes the sexual behavior of guppies and examines how mate choice by females leads to the evolution of the conspicuous colors and the courtship displays for which guppies are widely recognized The author shows that female guppies prefer males with bright color patterns especially those with orange spots and that the mating preferences of females lead to sexual selection on both color patterns and courtship displays of males

Sex, Color, and Mate Choice in Guppies Anne E. Houde, 2019-12-31 The Trinidadian guppy *Poecilia reticulata* is well known to biologists and home aquarium enthusiasts alike Scientists have studied guppies for most of the twentieth century Some of the most intensive recent research has been conducted by behavioral ecologists who have found that the guppy mating system makes guppies especially useful in the study of sexual selection and mate choice By observing guppy behavior in aquaria researchers hope to obtain new insights into how selection operates in natural populations Here Anne Houde summarizes and synthesizes the scientific work done to date relates the empirical findings on guppies to current themes in sexual selection theory and suggests new directions for future research This book describes the sexual behavior of guppies and examines how mate choice by females leads to the evolution of the conspicuous colors and the courtship displays for which guppies are widely recognized The author shows that female guppies prefer males with bright color patterns especially those with orange spots and that the mating preferences of females lead to sexual selection on both color patterns and courtship displays of males Houde's work addresses a number of areas that are of interest in sexual selection including the remarkable degree of plasticity and evolutionary lability of sexual behavior in guppies geographic variation in mating preferences possible mechanisms for the evolution of female mating preferences and the role of sexual selection in speciation In conclusion the author explores the implications of her findings for behavioral ecologists who study sexual selection in other species

Genetics of Mate Choice: From Sexual Selection to Sexual Isolation W.J. Etges, M.A. Noor, 2012-12-06 Genetic studies aimed at understanding the origin of species are dominating major scientific journals In the past decade genetic tools that were previously available only in model systems have become accessible to investigators working on nearly all species Concurrent with these technical advances has been an increase in understanding of both the importance of considering the ecological context of speciation and testing hypotheses about causes for species formation Many recent studies suggest a prominent role of sexual selection in species formation These advances have produced a need for a synthesis of what we now understand about speciation and perhaps more importantly where we should go from here In this volume several leading investigators and rising stars have contributed reviews and or novel primary research findings aimed at understanding the ultimate mystery on which Darwin named his most famous and influential book Fundamental to the origin of species is the evolution of mate choice systems This collection of papers discusses burgeoning genetic evolutionary and ecological approaches to understanding the origins of mating discrimination and causes of

preventing reproductive isolation both within and between species. The individual contributions span a wide spectrum of disciplines, taxa, and ideas, some controversial. This synthesis brings together several of the most recent ideas with supporting empirical data. This book will be of particular interest to both undergraduate and postgraduate researchers and students and researchers in the field of evolutionary biology, genetics, and animal behaviour.

Geographic Variation in Behavior Susan Adlai Foster, John A. Endler, 1999. Studies of animal behavior often assume that all members of a species exhibit the same behavior. *Geographic Variation in Behavior* shows that on the contrary, there is substantial variation within species across a wide range of taxa. Including work from pioneers in the field, this volume provides a balanced overview of research on behavioral characteristics that vary geographically. The authors explore the mechanisms by which behavioral differences evolve and examine related methodological issues. Taken together, the work collected here demonstrates that genetically based geographic variation may be far more widespread than previously suspected. The book also shows how variation in behavior can illuminate both behavioral evolution and general evolutionary patterns. Unique among books on behavior in its emphasis on geographic variation, this volume is a valuable new resource for students and researchers in animal behavior and evolutionary biology.

Fish Reproduction Maria J. Rocha, Augustine Arukwe, B.G. Kapoor, 2008-01-01. With the decline in world fish stocks, our knowledge of fish reproduction has become fundamental. Reproduction is an essential commitment to future generations. It is also a continuous development process throughout ontogeny, requiring energetic, ecological, physiological, anatomical, biochemical, and endocrinological adaptations. The first chapters highlight important issues affecting fish, normal ways of reproductive development, details would focus on species living in opposite environments such as tropical and polar fishes, far related as teleosts and cartilaginous fishes, and finally fish having different reproductive strategies. Thereafter, since many fishes live in detrimental environments mainly induced by the continuous input of xenobiotic substances into waterways, the authors found it highly pertinent to include this topic. Herein, the authors fix their attention on the factors and mechanisms that may well affect reproduction-related hormonal systems, as also on known consequences for fish living in.

Mating Systems and Strategies Stephen M. Shuster, Michael J. Wade, 2019-12-31. This book presents the first unified conceptual and statistical framework for understanding the evolution of reproductive strategies. Using the concept of the opportunity for sexual selection, the authors illustrate how and why sexual selection, though restricted to one sex and opposed in the other, is one of the strongest and fastest of all evolutionary forces. They offer a statistical framework for studying mating system evolution and apply it to patterns of alternative mating strategies. In doing so, they provide a method for quantifying how the strength of sexual selection is affected by the ecological and life history processes that influence females' spatial and temporal clustering and reproductive schedules. Directly challenging verbal evolutionary models that attempt to explain reproductive behavior without quantitative reference to evolutionary genetics, this book establishes a more solid theoretical foundation for the field. Among the weaknesses the authors find in the existing

data is the apparent ubiquity of condition dependent mating tactics They identify factors likely to contribute to the evolution of alternative mating strategies which they argue are more common than generally believed and illustrate how to measure the strength of selection acting on them Lastly they offer predictions on the covariation of mating systems and strategies consider the underlying developmental biology behind male polyphenism and propose directions for future research Informed by genetics this is a comprehensive and rigorous new approach to explaining mating systems and strategies that will influence a wide swath of evolutionary biology

The Evolutionary Biology of Human Female Sexuality Randy Thornhill, Steven W. Gangestad, 2008-09-25 Research conducted in the last fifteen years has placed in question many of the traditional conclusions scholars have formed about human female sexuality Though conventional wisdom asserts that women's estrus has been evolutionarily lost Randy Thornhill and Steven W Gangestad assert that it is present though concealed Women they propose therefore exhibit two sexualities each ovulatory cycle estrus and sexuality outside of the estrous phase extended sexuality that possess distinct functions Synthesizing research in behavioral evolution and comparative biology the authors provide a new theoretical framework for understanding the evolution of human female sexuality one that is rooted in female sexuality and phylogeny across all vertebrate animals

Exploring Animal Behavior in Laboratory and Field Bonnie J. Ploger, Ken Yasukawa, 2003 Designed to provide a variety of exercises that engage students actively in all phases of scientific investigation from formulating research questions through interpreting and presenting final results Suited to undergraduates each chapter presents an animal behavior exercise tested by academic members of the Animal Behavior Society Four types of exercises are presented 1 traditional exercises in which students follow a pre determined protocol to test particular hypotheses 2 traditional exercises that can easily be adapted to inquiry based approaches 3 combined pedagogy exercises that involve both traditional and inquiry approaches and 4 inquiry exercises in which students brainstorm to generate their own hypotheses then design their own experiments to test them Exercises cover descriptive ethology causation and development of behavior and behavioral ecology Both field and laboratory exercises are included on arthropods fish amphibians reptiles birds and mammals

Sexual Conflict Göran Arnqvist, Locke Rowe, 2013-11-28 The past decade has seen a profound change in the scientific understanding of reproduction The traditional view of reproduction as a joint venture undertaken by two individuals aimed at replicating their common genome is being challenged by a growing body of evidence showing that the evolutionary interests of interacting males and females diverge This book demonstrates that despite a shared genome conflicts between interacting males and females are ubiquitous and that selection in the two sexes is continuously pulling this genome in opposite directions These conflicts drive the evolution of a great variety of those traits that distinguish the sexes and also contribute to the diversification of lineages Göran Arnqvist and Locke Rowe present an array of evidence for sexual conflict throughout nature and they set these conflicts into the well established theoretical framework of sexual selection The recognition of conflict between the sexes is transforming our theories for the evolution of

mating systems and the sexes themselves Written by two top researchers in the field Sexual Conflict is the first book to describe this transformation It is a must read for all scholars and students interested in the evolutionary biology of reproduction Frontiers in Developmental Biology Robert A. Meyers, 2019-04-02 Dieser aktuelle Band aus der renommierten enzyklopädischen Reihe ist der erste in vielen Jahren der alle wichtigen Aspekte der Entwicklungsbiologie vereint von der Morphogenese und Organogenese über die epigenetische Regulation der Genexpression bis hin zur evolutionären Entwicklungsbiologie Der Herausgeber hat ein herausragendes Team zusammengestellt das diese Themen beleuchtet und damit ein wegweisendes Werk für die kommenden Jahre geschaffen Das Ergebnis ist ein einzigartiges herausragendes Referenzwerk der Entwicklungsbiologie für Forscher Studenten und Fachexperten *Reproduction and Sexuality in Marine Fishes* Kathleen Sabina Cole, 2010 Understanding reproduction in marine fishes is critical to their conservation It is also a fascinating topic in its own right This book is now the best single reference on the subject with original insights analysis and information Anyone interested in the fascinating diversity of ways fish reproduce will want to have a copy of this book handy Peter Moyle co author of Protecting Life on Earth Cole has assembled the internationally recognized authorities and they successfully cover topics of critical interest to behaviorists ecologists anatomists physiologists and conservation biologists These experts demonstrate the amazing diversity and complexity of sexual and reproductive characteristics that have evolved among marine fishes Gene Helfman co author of The Diversity of Fishes Biology Evolution and Ecology Kathleen Cole and her contributing authors raise from the depths of ignorance many neglected themes in the reproductive biology and fluid sexuality of marine fishes The sheer richness of the data and the enthusiastic engaging and thoughtful ways in which they are presented will encourage further research and discovery in biology of marine fishes and their complex and dynamic habitats Lynne Parenti co author of Comparative Biogeography Female Control William Eberhard, 2019-12-31 A growing body of evidence has begun to reveal flaws in the traditional assumption of female passivity and lack of discrimination after copulation has begun William Eberhard has compiled an impressive array of research on the ability of females to shape the outcome of mating He describes studies of many different cryptic mechanisms by which a female can accept a male for copulation but nevertheless reject him as a father Evidence from various fields indicates that such selectivity by females may be the norm rather than the exception Because most post copulatory competition between males for paternity is played out within the bodies of females female behavior morphology and physiology probably often influence male success in these contests Eberhard draws examples from a diversity of organisms ranging from ctenophores to scorpions nematodes to frogs and crickets to humans Cryptic female choice establishes a new bridge between sexual selection theory and reproductive physiology in particular the physiological effects of male seminal products on female reproductive processes such as sperm transport oviposition and remating Eberhard interweaves his review of previous studies with speculation on the consequences of this theoretical development and indicates promising new directions for future research Fish

Locomotion Paolo Domenici,2010-01-01 Fish accomplish most of their basic behaviors by swimming Swimming is fundamental in a vast majority of fish species for avoiding predation feeding finding food mating migrating and finding optimal physical environments Fish exhibit a wide variety of swimming patterns and behaviors This treatise looks at fish swimming from the behavioral and **The Cambridge Handbook of Evolutionary Perspectives on Sexual Psychology: Volume 1, Foundations** Todd K. Shackelford,2022-07-21 The interface of sexual behavior and evolutionary psychology is a rapidly growing domain rich in psychological theories and data as well as controversies and applications With nearly eighty chapters by leading researchers from around the world and combining theoretical and empirical perspectives The Cambridge Handbook of Evolutionary Perspectives on Sexual Psychology is the most comprehensive and up to date reference work in the field Providing a broad yet in depth overview of the various evolutionary principles that influence all types of sexual behaviors the handbook takes an inclusive approach that draws on a number of disciplines and covers nonhuman and human psychology It is an essential resource for both established researchers and students in psychology biology anthropology medicine and criminology among other fields Volume 1 Foundations of Evolutionary Perspectives on Sexual Psychology addresses foundational theories and methodological approaches **Developmental Instability** Michal Polak,2003 The field of developmental instability has generated a large amount of controversy recently mostly because of fierce disagreement over the genetic basis of fluctuating asymmetry and its role in mate selection This book is a timely and innovative critical evaluation of a burgeoning field The book explores the premise that complex organismal ecological and evolutionary processes can be understood as emergent properties of the epigenetic machine that is the mechanisms fundamental to all organisms responsible for building and organizing phenotypes from information translated from DNA **Evolution Education in the American South** Christopher D. Lynn,Amanda L. Glaze,William A. Evans,Laura K. Reed,2017-03-08 This volume reaches beyond the controversy surrounding the teaching and learning of evolution in the United States specifically in regard to the culture politics and beliefs found in the Southeast The editors argue that despite a deep history of conflict in the region surrounding evolution there is a wealth of evolution research taking place from biodiversity in species to cultural evolution and human development In fact scientists educators and researchers from around the United States have found their niche in the South where biodiversity is high culture runs deep and the pace is just a little bit slower Research Progress in Fisheries Science William Hunter, III,2011-04-15 A multidisciplinary subject the study of fisheries science includes the biological study of life habits and breeding of various species of fish It also involves farming and husbandry of important fishes and aquatic organisms in fresh water brackish water and any marine environment This new book includes a selection of topics in the field such as the impact of climate change on tropical fish studies on the reproductive and mating habits of specific fish hibernation of Antarctic fish the molecular makeup of specific fish and more **Levels of Selection in Evolution** Laurent Keller,2019-12-31 Ever since the groundbreaking work of George Williams W D Hamilton and Richard

Dawkins evolutionary biologists have recognized that natural selection generally does not operate for the good of the group but rather for the good of lower level units such as the individual the cell even the gene One of the fundamental problems of biology is what keeps competition between these various levels of natural selection from destroying the common interests to be gained from cooperation In this volume twelve prominent scientists explore this question presenting a comprehensive survey of the current theoretical and empirical research in evolutionary biology Recent studies show that at many levels of biological organization mechanisms have evolved to prevent potential conflict in natural selection Editor Laurent Keller's aim in this book is to bring together leading researchers from all biological disciplines to outline these potential conflicts and discuss how they are resolved A multi level approach of this kind allows important insights into the evolution of life as well as bridging the long standing conceptual chasm between molecular and organismal biologists The chapters here follow a rigorous theoretical framework giving the book an overall synergy that is unique to multi authored books The contributors in addition to the editor are H Charles J Godfray Edward Allen Herre Dawn M Kitchen Egbert Giles Leigh Jr Catherine M Lessells Richard E Michod Leonard Nunney Craig Packer Andrew Pomiankowski H Kern Reeve John Maynard Smith and E rs Szathm ry

Reproductive Biology of Teleost Fishes Robert J. Wootton, Carl Smith, 2014-12-03 Reproductive Biology of Teleost Fishes is the first integrated review of the reproductive biology of the bony fishes which are the most species rich and diversified group of vertebrates Teleosts display remarkable variation in their modes of reproduction and this volume is intended to provide a framework for understanding the remarkable reproductive diversity of this group It describes their reproductive biology using wherever possible phylogenetic analyses and life history theory as a means to interpret the information The book addresses the genetic physiological behavioural ecological evolutionary and applied aspects of teleost reproduction in a comparative framework that emphasises the adaptive basis of reproductive diversity Reproductive Biology of Teleost Fishes provides a comprehensive synthesis of fish reproduction that will be of great interest to life scientists particularly ecologists evolutionary biologists physiologists and advanced undergraduates postgraduates and research workers requiring a comprehensive overview of fish reproduction The book is suitable for courses in fish biology and ecology reproductive physiology and reproductive genetics It also addresses applied questions and will be of value for courses on fisheries science and aquaculture Libraries in all universities and research establishments where biological sciences fisheries science and aquaculture are studied and taught should have several copies of this important book on their shelves

Neural Networks and Animal Behavior Magnus Enquist, Stefano Ghirlanda, 2013-12-03 How can we make better sense of animal behavior by using what we know about the brain This is the first book that attempts to answer this important question by applying neural network theory Scientists create Artificial Neural Networks ANNs to make models of the brain These networks mimic the architecture of a nervous system by connecting elementary neuron like units into networks in which they stimulate or inhibit each other's activity in much the same way neurons do This book shows how scientists can employ ANNs

to analyze animal behavior explore the general principles of the nervous systems and test potential generalizations among species The authors focus on simple neural networks to show how ANNs can be investigated by math and by computers They demonstrate intuitive concepts that make the operation of neural networks more accessible to nonspecialists The first chapter introduces various approaches to animal behavior and provides an informal introduction to neural networks their history and their potential advantages The second chapter reviews artificial neural networks including biological foundations techniques and applications The following three chapters apply neural networks to such topics as learning and development classical instrumental condition and the role of genes in building brain networks The book concludes by comparing neural networks to other approaches It will appeal to students of animal behavior in many disciplines It will also interest neurobiologists cognitive scientists and those from other fields who wish to learn more about animal behavior

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