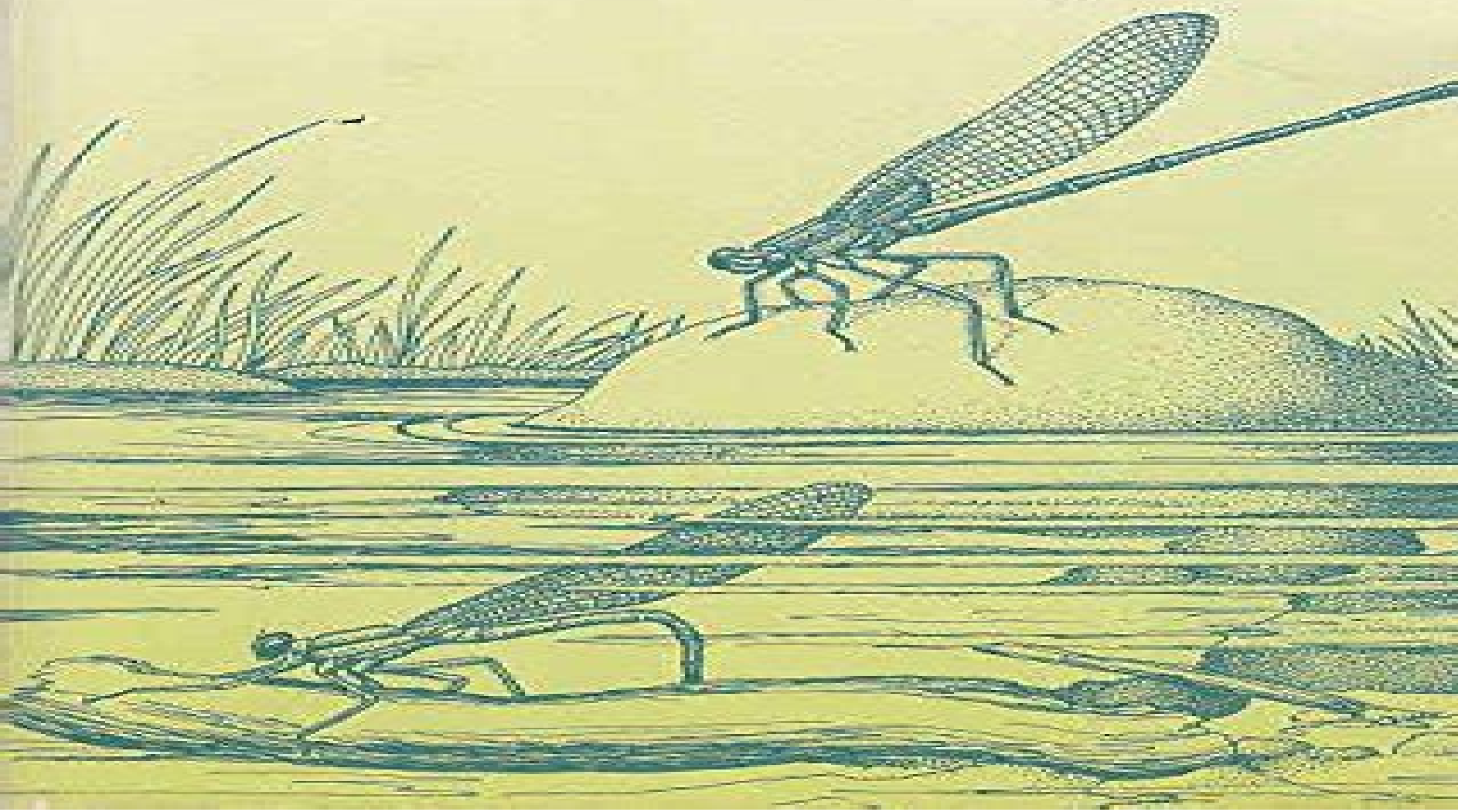


The Evolution of Insect Mating Systems

Randy Thornhill and John Alcock



The Evolution Of Insect Mating Systems

Tim R. Birkhead, Anders Pape Møller



The Evolution Of Insect Mating Systems:

The Evolution of Insect Mating Systems David M. Shuker, Leigh W. Simmons, 2014 Insects display a staggering diversity of mating and social behaviours Studying these systems provides insights into a wide range of evolutionary and behavioural questions such as the evolution of sex sexual selection sexual conflict and parental care This edited volume provides an authoritative update of the landmark book in the field **The Evolution of Insect Mating Systems** Thornhill and Alcock 1983 which had such a huge impact in shaping adaptationist approaches to the study of animal behaviour and influencing the study of the evolution of reproductive behaviour far beyond the taxonomic remit of insects This accessible new volume brings the empirical and conceptual scope of the original book fully up to date incorporating the wealth of new knowledge and research of the last 30 years It explores the evolution of complex forms of sex determination in insects and the role of sexual selection in shaping the evolution of mating systems Selection arising via male contest competition and female choice both before and after copulation are discussed as are the roles of parasites and pathogens in mediating the strength of sexual selection and the role that parental care plays in successful reproduction **The Evolution of Insect Mating Systems** is suitable for both graduate students and researchers interested in insect mating systems or behaviour from an evolutionary genetical physiological or ecological perspective Due to its interdisciplinary and concept driven approach it will also be of relevance and use to a broad audience of evolutionary biologists

The Evolution of Insect Mating Systems Randy Thornhill, John Alcock, 1985-07

The Evolution of Insect Mating Systems David M. Shuker, Leigh W. Simmons, 2014 **The Evolution of Insect Mating Systems** by Thornhill and Alcock was a key text in defining modern behavioural ecology Published in 1983 it has had a huge impact in shaping adaptationist approaches to the study of animal behaviour and influencing the study of the evolution of reproductive behaviour far beyond the taxonomic remit of insects While much in the original remains relevant today the aim in this edited volume is to bring together some of world s leading insect researchers to bring the empirical and conceptual scope of the original book up to date

The Evolution of Insect Mating Systems David Shuker, Leigh Simmons, 2014-07-31 Insects display a staggering diversity of mating and social behaviours Studying these systems provides insights into a wide range of evolutionary and behavioural questions such as the evolution of sex sexual selection sexual conflict and parental care This edited volume provides an authoritative update of the landmark book in the field **The Evolution of Insect Mating Systems** Thornhill and Alcock 1983 which had such a huge impact in shaping adaptationist approaches to the study of animal behaviour and influencing the study of the evolution of reproductive behaviour far beyond the taxonomic remit of insects This accessible new volume brings the empirical and conceptual scope of the original book fully up to date incorporating the wealth of new knowledge and research of the last 30 years It explores the evolution of complex forms of sex determination in insects and the role of sexual selection in shaping the evolution of mating systems

Selection arising via male contest competition and female choice both before and after copulation are discussed as are the roles of parasites and pathogens in mediating the strength of sexual selection and the role that parental care plays in successful reproduction. The Evolution of Insect Mating Systems is suitable for both graduate students and researchers interested in insect mating systems or behaviour from an evolutionary, genetical, physiological or ecological perspective. Due to its interdisciplinary and concept driven approach it will also be of relevance and use to a broad audience of evolutionary biologists.

Encyclopedia of Entomology John L. Capinera, 2008-08-11 This text brings together fundamental information on insect taxa, morphology, ecology, behavior, physiology and genetics. Close relatives of insects such as spiders and mites are included.

Jervis's Insects as Natural Enemies: Practical Perspectives Ian C.W. Hardy, Eric Wajnberg, 2023-11-09 There has been a dramatic increase in theoretical and practical studies on insect natural enemies over the last decades. The appeal of insect predators and in particular parasitoids as research animals derives from the relative ease with which many species may be cultured and experimented on in the laboratory, the simple life cycles of most parasitoid species and the increasing demand for biological pest control as a key component of the integrated pest management approach. There is now a very substantial literature on insect natural enemies and thus a great need for a general text that enquiring students or research workers can use in deciding on approaches and techniques that are appropriate to the study and evaluation of such insects. This book fulfils that demand. It is a considerably updated and expanded version of a previous best seller and provides an account of major aspects of the biology of predators and parasitoids punctuated with information and advice on which experiments or observations to conduct and importantly how to carry them out. Guidance is provided where necessary on the most recent further literature that may need to be consulted on given topics. While researchers can now refer to several books on parasitoids and predators, Jervis's *Insects as Natural Enemies* is unique in emphasising practicalities. It is aimed at students and professionals working in universities and both government and commercial institutes in the fields of integrated pest management, agriculture, horticulture and forestry as well as those interested in fundamentals of behavioural, population, community and evolutionary ecology.

Reproductive Strategies in Insects Omkar, Geetanjali Mishra, 2022-02-15 Reproduction is one of the most inherent tasks that all living organisms are actively involved in. It forms the backbone of their existence with all evolutionary energies directed over billion years of creation into maximizing reproductive effort. For so simple and directed a need such as maximizing reproduction it is interesting to see how much diversity and complexity exists in this task. Each organism despite having the same end goal employs different strategies. The complexities, intricacies and strategies of successful reproduction while being extremely fascinating are equally befuddling. *Reproductive Strategies in Insects* provides an expansive critical look at the reproductive strategies of the most diverse group of animals, the insects. Insects which inhabit myriad niches in all ecosystems except the oceans show the most diverse reproductive strategies ranging from simplest to most complex. Reproductive strategies viz search for mates, number of mates, display of mate quality

assessment of mate quality acceptance of mate rejection of mates forced copulations the fight for paternity pre during and post copula the modulation of paternity ovipositional strategies and parental care are described in detail in this book Also each strategy is analyzed in relation to its morphological physiological ethological ecological and evolutionary aspects Features Covers a wide variety of reproductive strategies A detailed step by step description of reproductive strategies Discusses morphological physiological ethological ecological and evolutionary aspects Modulation of these strategies and responsible modulatory factors are also discussed Well illustrated Recent research results and probable future research directions This is a niche reference book for ethologists biologists studying behavioural evolution and entomologists It may also be used as a textbook for a graduate level course in behaviour

Insects David B. Rivers, 2017-04-15 An introduction to the intriguing world of insects from bullet ants to butterflies Designed as an introduction to the intriguing world of insect biology this book examines familiar entomological topics in nontraditional ways Author David B Rivers gives important concepts relatable context through a pop culture lens and he covers subjects that are not typical for entomology textbooks including the impact of insects on the human condition the sex lives of insects why insects are phat but not fat forensic entomology and the threats that some insects pose to humanity Each chapter presents clear and concise key concepts chapter reviews review questions following Bloom's taxonomy of learning web links to videos and other resources and breakout boxes called Fly Spots that capture student interest with unique and entertaining facts related to entomology Focusing on both traditional and cutting edge aspects of insect biology and packed with extensive learning resources *Insects* covers a wide range of topics suitable for life science majors as well as non science students including the positive and negative influences of insects on everyday human life insect abundance insect classification here presented in the context of social media insect feeding communication defense and sex how insects are responding to climate change forensic entomology how insects can be used as weapons of war how insects relate to national security why insects have wings how to read pesticide labels

Insects as Natural Enemies Mark A. Jervis, 2007-09-07 Over the past three decades there has been a dramatic increase in theoretical and practical studies on insect natural enemies This considerably updated and expanded version of a previous best seller is an account of major aspects of the biology of predators and parasitoids punctuated with information and advice on which experiments or observations to conduct and how to carry them out It emphasizes practicalities and also provides guidance on further literature

Insects as Natural Enemies Mark Jervis, 2005-05-25 Over the past three decades there has been a dramatic increase in theoretical and practical studies on insect natural enemies The appeal of insect predators and parasitoids in particular as research animals derives from the relative ease with which many species may be cultured and experimented with in the laboratory the simple life cycles of most parasitoids and the increasing demand for biological pest control There is now a massive literature on insect natural enemies so there is a great need for a general text that the enquiring student or research worker can use in deciding on approaches

and techniques that are appropriate to the study and evaluation of such insects This book fulfils that demand A considerably updated and expanded version of a previous best seller it is an account of major aspects of the biology of predators and parasitoids punctuated with information and advice on which experiments or observations to conduct and how to carry them out Guidance is provided where necessary on the literature that may need to be consulted on particular topics While researchers can now refer to several books on parasitoids and predators *Insects as Natural Enemies* is unique in emphasising practicalities It is aimed at students and professional working in universities and both government and commercial institutes in the fields of pest management agriculture horticulture and forestry

Physiological Systems in Insects Marc J.

Klowden,2013-05-15 *Physiological Systems in Insects* discusses the roles of molecular biology neuroendocrinology biochemistry and genetics in our understanding of insects All chapters in the new edition are updated with major revisions to those covering swiftly evolving areas like endocrine developmental behavioral and nervous systems The new edition includes the latest details from the literature on hormone receptors behavioral genetics insect genomics neural integration and much more Organized according to insect physiological functions this book is fully updated with the latest and foundational research that has influenced understanding of the patterns and processes of insects and is a valuable addition to the collection of any researcher or student working with insects There are about 10 quintillion insects in the world divided into more than one million known species and some scientists believe there may be more than 30 million species As the largest living group on earth insects can provide us with insight into adaptation evolution and survival The internationally respected third edition of Marc Klowden s standard reference for entomologists and researchers and textbook for insect physiology courses provides the most comprehensive analysis of the systems that make insects important contributors to our environment Third edition has been updated with new information in almost every chapter and new figures Includes an extensive up to date bibliography in each chapter Provides a glossary of common entomological and physiological terms

Insect Behavior Alex Córdoba-Aguilar,Daniel González-Tokman,Isaac González-Santoyo,2018-07-19 Insects display a staggering diversity of behaviors Studying these systems provides insights into a wide range of ecological evolutionary and behavioral questions including the genetics of behavior phenotypic plasticity chemical communication and the evolution of life history traits This accessible text offers a new approach that provides the reader with the necessary theoretical and conceptual foundations at different hierarchical levels to understand insect behavior The book is divided into three main sections mechanisms ecological and evolutionary consequences and applied issues The final section places the preceding chapters within a framework of current threats to human survival climate change disease and food security before providing suggestions and insights as to how we can utilize an understanding of insect behavior to control and or ameliorate them Each chapter provides a concise authoritative review of the conceptual theoretical and methodological foundations of each topic

The Life History of the Parental Shield Bug, *Parastrachia japonensis* Lisa Filippi,Shintaro Nomakuchi,2022-10-13 This

book presents the discoveries made during nearly three decades of research on the parental shield bug *Parastrachia japonensis* inhabiting Kyushu Island Japan *P. japonensis* has evolved a unique and fascinating life history characterized by extreme behavioral and physiological adaptations that have culminated in a singularly dependent relationship with its lone host tree *Schoepfia jasminodora* Olacaceae which is a generally scarce and unreliable resource It is expected that the evolution of parental care behaviors in the strictly semelparous *P. japonensis* was more directly influenced by the benefit to females that arises from enhanced survivorship of current offspring rather than any possible cost the females might incur in terms of reduced future reproductive success because no future reproduction is possible The authors explain how the different parental cares in this species enhance offspring survivorship in the context of the ecological conditions it has experienced over evolutionary time The book begins with a recap of the earliest studies the reports through 1991 and then introduces the many fascinating aspects of the life history neurobiology physiology and behavior of *P. japonensis* that have been newly discovered since and those aspects that have been confirmed through experimentation over the past thirty years This comprehensive review of information will be useful for comparative studies of parental care in other semelparous and iteroparous organisms experiencing both similar and different ecological constraints The book will be of academic interest to undergraduate and graduate students of entomology zoology behavior and behavioral ecology

Effects of Climate Change on Insects Daniel González-Tokman, Wesley Dáttilo, 2024 An advanced textbook that reviews the conceptual approaches and the most important advances in our current understanding of insect physiology ecology evolution and conservation in the ongoing and rapidly developing context of global anthropogenic climate change

Sperm Competition and Its Evolutionary Consequences in the Insects Leigh W. Simmons, 2019-12-31 One hundred years after Darwin considered how sexual selection shapes the behavioral and morphological characteristics of males for acquiring mates Parker realized that sexual selection continues after mating through sperm competition Because females often mate with multiple males before producing offspring selection favors adaptations that allow males to preempt sperm from previous males and to prevent their own sperm from preemption by future males Since the 1970s this area of research has seen exponential growth and biologists now recognize sperm competition as an evolutionary force that drives such adaptations as mate guarding genital morphology and ejaculate chemistry across all animal taxa The insects have been critical to this research and they still offer the greatest potential to reveal fully the evolutionary consequences of sperm competition This book analyzes and extends thirty years of theoretical and empirical work on insect sperm competition It considers both male and female interests in sperm utilization and the sexual conflict that can arise when these differ It covers the mechanics of sperm transfer and utilization morphology physiology and behavior Sperm competition is shown to have dramatic effects on adaptation in the context of reproduction as well as far reaching ramifications on life history evolution and speciation Written by a top researcher in the field this comprehensive up to date review of the evolutionary causes and consequences of sperm

competition in the insects will prove an invaluable reference for students and established researchers in behavioral ecology and evolutionary biology

Sexual Selection: A Very Short Introduction Marlene Zuk, Leigh W. Simmons, 2018-06-28 What is responsible for the differences between the sexes in so many animals from the brilliant plumage of birds of paradise to the antlers on deer And why are the traits that distinguish the sexes sometimes apparently detrimental to survival Even when they look more or less alike why do males and females sometimes behave differently Questions like these have intrigued scientists and the public alike for many years and new discoveries are showing us both how wildly variable the natural world is and how some basic principles can help explain much of that variation Like natural selection sexual selection is a process that results from differential representation of genes in successive generations Under sexual selection however the crucial characteristics that determine whether an individual reproduces depend on sexual competition rather than survival ability This Very Short Introduction considers the history of our understanding of sexual selection from Darwin's key insights to the modern day Considering the investment animals place on reproduction variation in mating systems sexual conflict and the origin of sexual dimorphism Marlene Zuk and Leigh Simmons discuss questions such as whether females can really choose between males on aesthetic grounds and how sexual conflict is resolved in different species They conclude with a consideration of the thorny question of how and even if sexual selection theory applies to humans

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Language, Ethics and Animal Life Niklas Forsberg, Mikel Burley, Nora Hamalainen, 2012-10-11 New research into human and animal consciousness a heightened awareness of the methods and consequences of intensive farming and modern concerns about animal welfare and ecology are among the factors that have made our relationship to animals an area of burning interest in contemporary philosophy Utilizing methods inspired by Ludwig Wittgenstein the contributors to this volume explore this area in a variety of ways Topics discussed include scientific vs non scientific ways of describing human and animal behaviour the ethics of eating particular animal species human nature emotions and instinctive reactions responses of wonder towards the natural world the moral relevance of literature the concept of dignity and the question whether non human animals can use language This book will be of great value to anyone interested in philosophical and interdisciplinary issues concerning language ethics and humanity's relation to animals and the natural world

Cryptic Female Choice in Arthropods Alfredo V. Peretti, Anita Aisenberg, 2015-05-25 This timely book revisits cryptic female choice in arthropods gathering detailed contributions from around the world to address key behavioral ecological and evolutionary questions The reader will find a critical summary of major breakthroughs in taxon oriented chapters that offer many new perspectives and cases to explore and in many cases unpublished data Many groups of arthropods such as spiders harvestmen flies moths crickets

earwigs beetles eusocial insects shrimp and crabs are discussed Sexual selection is currently the focus of numerous and controversial theoretical and experimental studies Selection in mating and post mating patterns can be shaped by several different mechanisms including sperm competition extreme sexual conflict and cryptic female choice Discrimination among males during or after copulation is called cryptic female choice because it occurs after intromission the event that was formerly used as the definitive criterion of male reproductive success and is therefore usually difficult to detect and confirm Because it sequentially follows intra and intersexual interactions that occur before copulation cryptic female choice has the power to alter or negate precopulatory sexual selection However though female roles in biasing male paternity after copulation have been proposed for a number of species distributed in many animal groups cryptic female choice continues to be often underestimated Furthermore in recent years the concept of sexual conflict has been frequently misused linking sexual selection by female choice irrevocably and exclusively with sexually antagonistic co evolution without exploring other alternatives The book offers an essential source of information on how two fields selective cooperation and individual sex interests work together in the context of cryptic female choice in nature using arthropods as model organisms It is bound to spark valuable discussions among scientists working in evolutionary biology across the world motivating new generations to unveil the astonishing secrets of sexual biology throughout the animal kingdom

Sperm Competition and Sexual Selection Tim R. Birkhead, Anders Pape Møller, 1998-08-12 Sperm Competition and Sexual Selection presents the intricate ways in which sperm compete to fertilize eggs and how this has prompted reinterpretations of breeding behavior This book provides a theoretical framework for the study of sperm competition which is a central part of sexual selection It also discusses the roles of females and the relationships between paternal care in sperm competition The chapters focusing on taxonomic development are diverse and cover all the major animal groups both vertebrate and invertebrate and plants The final chapter provides an overview discussing the relationship between sperm competition and sexual selection in terms of both function and mechanism and how these translate into species fitness This book will be of prime interest to behaviorists ecologists and evolutionary biologists suggesting new avenues of research and new ways of approaching old problems The only up to date summary of a central and popular subject Well known editors and authors Provides a theoretical framework for the study of sperm competition Covers all major animal groups Includes a chapter on plants

Unveiling the Energy of Verbal Artistry: An Emotional Sojourn through **The Evolution Of Insect Mating Systems**

In some sort of inundated with monitors and the cacophony of immediate interaction, the profound energy and emotional resonance of verbal artistry frequently disappear into obscurity, eclipsed by the continuous onslaught of noise and distractions. Yet, set within the lyrical pages of **The Evolution Of Insect Mating Systems**, a captivating work of fictional beauty that pulses with fresh emotions, lies an unique trip waiting to be embarked upon. Written by a virtuoso wordsmith, that magical opus courses viewers on a psychological odyssey, gently exposing the latent possible and profound influence stuck within the intricate web of language. Within the heart-wrenching expanse with this evocative analysis, we shall embark upon an introspective exploration of the book is main themes, dissect its interesting writing model, and immerse ourselves in the indelible impression it leaves upon the depths of readers souls.

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