Insect Sounds And Communication Physiology Behaviour Ecology And Evolution Contemporary Topics In Entomology

ROBERTSON FINLEY

Specialization, Speciation, and Radiation Springer
A long-awaited update of the standard textbook on insect structure and function, revised by a team of eminent insect physiologists.
Anatomy Physiology (Ear) Academic Press
Drawing on expertise from around the world, this volume identifies our current state of knowledge about the behavior and physiology of root herbivores. In particular, this work describes prevailing concepts and theories based on historical and current literature and identifies what new technologies and approaches are available to researchers in the field. Chapters address how root herbivore behavior and physiology is affected by the biotic and abiotic soil environment, cover case studies of globally significant pests and discuss advances in molecular techniques. Covering all aspects of behavioral and physiological responses of root herbivores to their environment, this will be valuable reading for researchers and professionals in agricultural entomology, plant science, ecology and soil science. Key topics include: Molecular approach to root herbivores, Phylloxera, Plant metabolites, Soil climate, Behavioral ecology / wireworms
Mechanisms and Anthropogenic Factors in Animal Communication John Wiley & Sons
The biological sciences cover a broad array of literature types, from younger fields like molecular biology with its reliance on recent journal articles, genomic databases, and protocol manuals to classic fields such as taxonomy with its scattered literature found in monographs and journals from the past three centuries. Using the Biological Literature: A Practical Guide, Fourth Edition is an annotated guide to selected resources in the biological sciences, presenting a wide-ranging list of important sources. This completely revised edition contains numerous new resources and descriptions of all entries including textbooks. The guide emphasizes current materials in the English language and includes retrospective references for historical perspective and to provide access to the taxonomic literature. It covers both print and electronic resources including monographs, journals, databases, indexes and abstracting tools, websites, and associations—providing users with listings of authoritative informational resources of both classical and recently published works. With chapters devoted to each of the main fields in the basic biological sciences, this book offers a guide to the best and most up-to-date resources in biology. It is appropriate for anyone interested in searching the biological literature, from undergraduate students to faculty, researchers, and librarians. The guide includes a supplementary website dedicated to keeping URLs of electronic and web-based resources up to date, a popular feature continued from the third edition.
Food Exploitation By Social Insects Harvard University Press
In planning The Handbook volumes on Audition, we, the editors, made the decision that there should be many authors, each writing about the work in the field that he knew best through his own research, rather than a few authors who would review areas of research with which they lacked first hand familiarity. For the purposes of the chapters on Audition, sensory physiology has been defined very broadly to include studies from the many

disciplines that contribute to our understanding of the structures concerned with hearing and the processes that take place in these structures in man and in lower animals. A number of chapters on special topics have been included in order to present information that might not be covered by the usual chapters dealing with anatomical, physi ological and behavioral aspects of hearing. We wish to thank all authors of the volumes on Audition for the contributions that they have made. We feel confident that their efforts will also be appreciated by the many scientists and clinicians who will make use of the Handbook for many years to come. WOLF D. KEIDEL WILLIAM D. NEFF Erlangen Bloomington August 1974 Contents Introduction. By G. v. BEKESY t. With 3 Figures. . . . . 1 Chapter 1 Consideration of the Acoustic Stimulus. By R. R. PFEIFFER. With Chapter 2 19 Figures. . . . . 9 Comparative Anatomy of the Middle Ear. By O. W. HENSON Jr. With Chapter 3 23 Figures. . . . . 39 . . . . .

Journal of Comparative Physiology University of Chicago Press

The study of animal communication has led to significant progress in our general understanding of motor and sensory systems, evolution, and speciation. However, one often neglected aspect is that signal exchange in every modality is constrained by noise, be it in the transmission channel or in the nervous system. This book analyses whether and how animals can cope with such constraints, and explores the implications that noise has for our understanding of animal communication. It is written by leading biologists working on different taxa including insects, fish, amphibians, lizards, birds, and mammals. In addition to this broad taxonomic approach, the chapters also cover a wide array of research disciplines: from the mechanisms of signal production and perception, to the behavioural ecology of signalling, the evolution of animal communication, and conservation issues. This volume promotes the integration of the knowledge gained by the diverse approaches to the study of animal communication and, at the same time, highlights particularly interesting fields of current and future research.

Acoustic Communication in Insects and Anurans Springer Science & Business Media

This volume is a self-contained companion piece to Studying Vibrational Communication, published in 2014 within the same series. The field has expanded considerably since then, and has even acquired a name of its own: biotremology. In this context, the book reports on new concepts in this fascinating discipline, and features chapters on state-of-the art methods for studying behavior tied to substrate-borne vibrations, as well as an entire section on applied biotremology. Also included are a historical contribution by pioneers in the field and several chapters reviewing the advances that have been made regarding specific animal taxa. Other new topics covered are vibrational communication in vertebrates, multimodal communication, and biotremology in the classroom, as well as in art and music. Given its scope, the book will appeal to all those interested in communication and vibrational behavior, but also to those seeking to learn about an ancient mode of communication.

Science and Society CRC Press

Insect Sounds and CommunicationPhysiology, Behaviour, Ecology, and EvolutionCRC Press

Insect Communication Insect Sounds and CommunicationPhysiology, Behaviour, Ecology, and Evolution

The book is a comprehensive text on all aspects of the biology of aquatic insects around the world. This fauna comprises many thousands of species that previously lacked a dedicated reference text.

Sound Communication in Insects CRC Press

This volume explains the key ideas, questions and methods involved in studying the hidden world of vibrational communication in animals. The authors dispel the notion that this form of communication is difficult to study and show how vibrational signaling is a key to social interactions in species that live in contact with a substrate, whether it be a grassy lawn, a rippling stream or a tropical forest canopy. This ancient and widespread form of social exchange is also remarkably understudied. A frontier in animal behavior, it offers unparalleled opportunities for discovery and for addressing general questions in communication and social evolution. In addition to reviews of advances made in the study of several animal taxa, this volume also explores topics such as vibrational communication networks, the interaction of acoustic and vibrational communication, the history of the field, the evolution of signal production and reception and establishing a common vocabulary.

Ecological, Behavioral, and Theoretical Approaches CRC Press

Based on nearly 40 years of teaching, this book thoroughly describes the principles and fundamentals of insect physiology. Readers will quickly understand the terminology needed to navigate the voluminous, scattered literature in the field. With approximately 1500 references and more than 240 figures and tables, Insect Physiology and Biochemistry is useful as a core text for upper division and graduate students, as well as a valuable reference for scientists who work with insects in genetics, biochemistry, virology, microbiology, and behavior.

A Practical Guide, Fourth Edition Springer Nature

Insect Hearing provides a broadly based view of the functions, mechanisms, and evolution of hearing in insects. With a single exception, the chapters focus on problems of hearing and their solutions, rather than being focused on particular taxa. The exception, hearing in Drosophila, is justified because, due to its ever growing toolbox of genetic and optical techniques, Drosophila is rapidly becoming one of the most important model systems in neurobiology, including the neurobiology of hearing. Auditory systems, whether insectan or vertebrate, must perform a number of basic tasks: capturing mechanical stimuli and transducing these into neural activity, representing the timing and frequency of sound signals, distinguishing between behaviorally relevant signals and other sounds and localizing sound sources. Studying how these are accomplished in insects offers a valuable comparative view that helps to reveal general principles of auditory function.

Insect Hearing CRC Press

This book provides insight into the complex nature of socialization and development by exploring the interrelations among such topics as play, diet, social cognition, self-concept, friendship, family, and school. This book also examines the contributions and impact of intrapersonal and interpersonal integration on a child's psychological development from early to middle childhood levels.

Volume 61 Springer Science & Business Media

Advances in Insect Physiology, Volume 61 highlights new advances in the field, with this new volume presenting interesting chapters on a variety of timely topics, including Acoustic signaling in Orthoptera, Sound production in Drosophila melanogaster, and Communication by surface borne mechanical waves in insects. Provides the authority and expertise of leading contributors from an international board of authors Presents the latest release in the Advances in Insect Physiology series

Using the Biological Literature University of Chicago Press

Edible insects have always been a part of human diets, but in some societies there remains a degree of disdain and disgust for their consumption. Insects offer a significant opportunity to merge traditional knowledge and modern science to improve human food security worldwide. This publication describes the contribution of insects to food security and examines future prospects for raising insects at a commercial scale to improve food and feed production, diversify diets, and support livelihoods in both developing and developed countries. Edible insects are a promising alternative to the conventional production of meat, either for direct human consumption or for indirect use as feedstock. This publication will boost awareness of the many valuable roles that insects play in sustaining nature and human life, and it will stimulate debate on the expansion of the use of insects as food and feed.

Aquatic Entomology John Wiley & Sons

Walk near woods or water on any spring or summer night and you will hear a bewildering (and sometimes deafening) chorus of frog, toad, and insect calls. How are these calls produced? What messages are encoded within the sounds, and how do their intended recipients receive and decode these signals? How does acoustic communication affect and reflect behavioral and evolutionary factors such as sexual selection and predator avoidance? H. Carl Gerhardt and Franz Huber address these questions among many others, drawing on research from bioacoustics, behavior, neurobiology, and evolutionary biology to present the first integrated approach to the study of acoustic communication in insects and anurans. They highlight both the common solutions that these very different groups have evolved to shared challenges, such as small size, ectothermy (cold-bloodedness), and noisy environments, as well as the divergences that reflect the many differences in evolutionary history between the groups. Throughout the book Gerhardt and Huber also provide helpful suggestions for future research.

Insect Pheromone Biochemistry and Molecular Biology Springer Science & Business Media

Neuroendocrine Regulation of Animal Vocalization: Mechanisms and Anthropogenic Factors in Animal Communication examines the underpinning neuroendocrine (NE) mechanisms that drive animal communication across taxa. Written by international subject experts, the book focuses on the importance of animal communication in survival and reproduction at an individual and species level, and the impact that increased production and accumulation of endocrine-disrupting chemicals (EDCs) can have on these regulatory processes. This book discusses sound production, perception, processing, and response across a range of animals. This includes insects, fish, bats, birds, nonhuman primates, infant humans, and many others. Some chapters analyze how neuroactive substances, endocrine control, and chemical pollution affect the physiology of the animal’s perceptive and sound-producing organs, as well as their auditory and vocal receptors and pathways. Other chapters address the recent approaches governments have taken to protect against the endocrine disruption of animal (vocal) behaviors. The book is a valuable resource for researchers and advanced students seeking first-rate material on neuroendocrinological effects on animal behavior and communication. Serves as the most comprehensive cross-taxa study of its kind, revolutionary in its focus on the impacts of EDCs on the processes guiding animal communication Emphasizes the importance of production, perception and processing of acoustic vocalization for survival Analyzes recent governmental policies and protections against the effects of EDCs on humans and wildlife

Studying Vibrational Communication CRC Press

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 Superorganism Springer Science & Business Media

Walk near woods or water on any spring or summer night and you will hear a bewildering (and sometimes deafening) chorus of frog, toad, and insect calls. How are these calls produced? What messages are encoded within the sounds, and how do their intended recipients receive and decode these signals? How does acoustic communication affect and reflect behavioral and evolutionary factors such as sexual selection and predator avoidance? H. Carl Gerhardt and Franz Huber address these questions among many others, drawing on research from bioacoustics, behavior, neurobiology, and evolutionary biology to present the first integrated approach to the study of acoustic communication in insects and anurans. They highlight both the common solutions that these very different groups have evolved to shared challenges, such as small size, ectothermy (cold-bloodedness), and noisy environments, as well as the divergences that reflect the many differences in evolutionary history between the groups. Throughout the book Gerhardt and Huber also provide helpful suggestions for future research.

Common Problems and Diverse Solutions Frontiers Media SA

Insect Pheromone Biochemistry and Molecular Biology, Second Edition, provides an updated and comprehensive review of the biochemistry and molecular biology of insect pheromone biosynthesis and reception. The book ties together historical information with recent discoveries, provides the reader with the current state of the field, and suggests where future research is headed. Written by international experts, many of whom pioneered studies on insect pheromone production and reception, this release updates the 2003 first edition with an emphasis on recent advances in the field. This book will be an important resource for entomologists and molecular biologists studying all areas of insect communication. Offers a historical and contemporary perspective, with a focus on advances over the last 15 years Discusses the molecular and regulatory mechanisms underlying pheromone production/detection, as well as the evolution of these processes across the insects Led by editors with broad expertise in the metabolic pathways of pheromone production and the biochemical and genetic processes of pheromone detection

Advanced Tools and Methodologies Psychology Press

With few exceptions, insects are perceived in industrialized countries as undesirable pests. In reality, relatively few insects interfere with us or our resources. Most have benign or positive effects on ecosystem services, and many represent useful resources in non-industrialized countries. Challenging traditional perceptions of the value of insects, Insects and Sustainability of Ecosystem Services explores the ways insects affect the ecosystem services we depend upon. It also fosters an appreciation for the amazing diversity, adaptive ability, and natural roles of insects. The book discusses how the ways in which we manage insects will determine an ecosystem's capacity to continue to supply services. It reviews aspects of insect physiology, behavior, and ecology that affect their interactions with other ecosystem components and ecosystem services, emphasizing critical effects of insects on the sustainability of ecosystem processes and services. The author examines the integration of insect ecology with self-regulatory aspects of ecosystems that control primary production, energy and nutrient fluxes, and global climate—functions that underlie the sustainability of ecosystem services. Clearly, we need environmental policies that meet needs for pest control where warranted, but do not undermine the important contributions of insects to sustaining ecosystem processes and services. With in-depth coverage of the multiple, often compensatory, effects of insects on various resources or ecosystem services and on the consequences of control tactics for those resources or services, Insects and Sustainability of Ecosystem Services recommends changes in perspectives and policies regarding insects that will contribute to sustainability of ecosystem services.