Neurobiology and Behavior of Honeybees

Edited by Randolf Menzel and Alison Mercer





Neurobiology And Behavior Of Honeybees

Clive D. L. Wynne

Neurobiology And Behavior Of Honeybees:

Honeybee Neurobiology and Behavior C. Giovanni Galizia, Dorothea Eisenhardt, Martin Giurfa, 2011-11-25 The book is a sequel of a similar book edited by Randolf Menzel and Alison Mercer Neurobiology and Behavior of Honeybees published in 1987 It is a Festschrift for the 70th birthday of Randolf Menzel who devoted his life to the topic of the book The book will include an open commentary for each section written by Randolf Menzel and discussed with the authors The written contributions take their inspiration from a symposium on the topic with all the authors that was held in Berlin in summer Neurobiology and Behavior of Honeybees Randolf Menzel, Alison Mercer, 2012-12-06 At the beginning of the 2010 century Karl von Frisch inaugurated the experimental analysis of bee behavior with his studies on form and color vision Since then experimental analysis of bee behavior has been extended to their orientation in space and time sensory capabilities and communication within a social group How does a creature with a brain volume of scarcely one cubic millimeter generate such varied and complex behavior This volume represents the latest research on the behavior and neurobiology of bees Topics include dance communication foraging and search behavior decision making color vision learning and memory structure and function of brain neurons immunocytological characterization of neuropils and identified neurons and neuropharmacological studies of stereotyped and learned behavior Together these papers illustrate the challenge that bee behavior presents to the neuroethologist as well as the progress that this field has made in recent years in the tradition of von Frisch s pioneering work Honeybee Neurobiology and Behavior Giovanni Galizia, Dorothea Eisenhardt, Martin Giurfa, 2011-12-01 The book is a seguel of a similar book edited by Randolf Menzel and Alison Mercer Neurobiology and Behavior of Honeybees published in 1987 It is a Festschrift for the 70th birthday of Randolf Menzel who devoted his life to the topic of the book The book will include an open commentary for each section written by Randolf Menzel and discussed with the authors The written contributions take their inspiration from a symposium on the topic with all the authors that was Neurobiology of Comparative Cognition Raymond P. Kesner, David S. Olton, 2014-02-25 held in Berlin in summer 2010 This book represents a unique and elaborate exposition of the neural organization of language memory and spatial perception in a wide variety of species including humans bees fish rodents and monkeys The editors have united the comparative approach with its emphasis on evolutionary determinants of behavior the neurobiological approach with its emphasis on the neural determinants of behavior and the cognitive approach with its emphasis on understanding higher order mental functions The combination of these three approaches provides an unusual look at the neurobiology of comparative cognition and should stimulate increased investigations in this field and related disciplines The Foraging Behavior of the Honey Bee (Apis mellifera, L.) John Purdy, 2023-10-25 The Foraging Behavior of the Honeybee Apis mellifera L provides a scholarly resource for knowledge on the regulation communication resource allocation learning and characteristics of honeybee foraging behavior at the individual and colony level Foraging in this context is the exploration of

the environment around a honey bee hive and the collection of resources pollen nectar water etc by bees in the worker caste of a colony Honeybees have the unique ability to balance conflicting and changing resource needs in rapidly changing environments thus their characterization as superorganisms made up of individuals who act in the interest of the whole This book explores the fascinating world of honey bees in their struggle to obtain food and resources in the ecosystem and environment around the hive Written by a team of international experts on honey bee behavior and ecology this book covers current and historical knowledge research methods and modeling used in the field of study and includes estimates of key parameters of energy utilization quantities of materials collected and identifies inconsistencies or gaps in current knowledge in the field Establishes a basis of current knowledge on honeybees to build and advance understanding of their foraging behavior Addresses stressors such as habitat loss climate change pesticides pests and diseases Presents concise concepts that facilitate direct traceability to the original underlying research **Neurobiology of Chemical Communication** Carla Mucignat-Caretta, 2014-02-14 Intraspecific communication involves the activation of chemoreceptors and subsequent activation of different central areas that coordinate the responses of the entire organism ranging from behavioral modification to modulation of hormones release Animals emit intraspecific chemical signals often referred to as pheromones Behavioral Mechanisms in Evolutionary Ecology Leslie Real, 1994-12-15 The first book to advertise their prese length exploration of behavioral mechanisms in evolutionary ecology this ambitious volume illuminates long standing questions about cause and effect relations between an animal s behavior and its environment By focusing on biological mechanisms the sum of an animal s cognitive neural developmental and hormonal processes leading researchers demonstrate how the integrated study of animal physiology cognitive processes and social interaction can yield an enriched understanding of behavior With studies of species ranging from insects to primates the contributors examine how various animals identify and use environmental resources and deal with ecological constraints as well as the roles of learning communication and cognitive aspects of social interaction in behavioral evolution Taken together the chapters demonstrate how the study of internal mechanistic foundations of behavior in relation to their ecological and evolutionary contexts and outcomes provides valuable insight into such behaviors as predation mating and dispersal Behavioral Mechanisms in Evolutionary Ecology shows how a mechanistic approach unites various levels of biological organization to provide a broader Cognitive Ecology of Pollination Lars Chittka, James D. understanding of the biological bases of behavioral evolution Thomson, 2001-05-28 Important breakthroughs have recently been made in our understanding of the cognitive and sensory abilities of pollinators how pollinators perceive memorise and react to floral signals and rewards how they work flowers move among inflorescences and transport pollen These new findings have obvious implications for the evolution of floral display and diversity but most existing publications are scattered across a wide range of journals in very different research traditions This book brings together for the first time outstanding scholars from many different fields of pollination biology integrating

the work of neuroethologists and evolutionary ecologists to present a multi disciplinary approach Aimed at graduates and researchers of behavioural and pollination ecology plant evolutionary biology and neuroethology it will also be a useful source of information for anyone interested in a modern view of cognitive and sensory ecology pollination and floral evolution

Bees as Superorganisms Robin Moritz, Edward E. Southwick, 2012-12-06 The honeybee Apis melli era L is one of the better studied organisms on this planet There are plenty of books on the biology of the honeybee for all the scientist the beekeeper and the layman In view of this flood of publications one is tempted to ask why does it require another one The answer is simple a new one is not required and we do not intend to present a new book on the honeybee This would really just add some more inches to the already overloaded bookshelf without sub stantial new information Instead we intend to present a book on the honeybee colony This of course immediately releases the next guestion so what is the difference Although the difference may look insignificant at first glance we try to guide the reader with a fundamentally different approach through the biology of honeybees and eusocial insect societies in general The biology of individual colony members is only addressed when it is necessary to explain colonial mechanisms and the colonyas a whole as a biological unit which is the main focus of this treatise Both of us felt that all current textbooks on bee biology put too much emphasis on the individual worker queen or drone in the colony Often it is completely neglected that the colony is a very significant if not the most significant biological structure in bee biology Toward a Theory of Neuroplasticity Christopher A. Shaw, Jill McEachern, 2013-03-07 This book provides a broad survey of many of the major areas in neuroplasticity research by leading investigators in the field The topics considered range across all levels of nervous system organization from the molecular to behavioral levels for species ranging from C elegans to humans In addition the effects of development and neuropathological events are discussed A final summary chapter synthesizes the data gathered in this volume in order to provide the basis for a general theory of neuroplasticity Advances in the Study of Behavior H. Jane Brockmann, Peter J.B. Slater, Charles T. Snowdon, Timothy J. Roper, Marc Naguib, Katherine E. Wynne-Edwards, 2006-12-14 The aim of Advances in the Study of Behavior is to serve scientists engaged in the study of animal behavior including psychologists neuroscientists biologists ethologists pharmacologists endocrinologists ecologists and geneticists Articles in the series present critical reviews of significant research programs with theoretical syntheses reformulation of persistent problems and or highlighting new and exciting research concepts Advances in the Study of Behavior is now available online at ScienceDirect full text online of volumes 30 onwards Elsevier book series on ScienceDirect gives multiple users throughout an institution simultaneous online access to an important compliment to primary research Digital delivery ensures users reliable 24 hour access to the latest peer reviewed content The Elsevier book series are compiled and written by the most highly regarded authors in their fields and are selected from across the globe using Elsevier's extensive researcher network For more information about the Elsevier Book Series on ScienceDirect Program please visit http www info sciencedirect com bookseries Published

continuously since 1965 Multidisciplinary across social and life science subject areas Volume 36 addresses current themes in animal behavior Honey Bee Medicine for the Veterinary Practitioner Terry Ryan Kane, Cynthia M. Faux, 2021-05-11 Ein unerl ssliches Referenzwerk fr die Gesunderhaltung von Honigbienen Honey Bee Medicine for Veterinary Practitioners ist ein zuverl ssiger Leitfaden fr die Gesunderhaltung von Honigbienen und des Bienenstocks Dieses Fachbuch fr Veterin rmediziner und weitere Experten bietet n tzliche Informationen Antworten auf h ufige Fragen und erleichtert die Untersuchung des Bienenstocks Behandelt werden eine Vielzahl von Themen von den Grundlagen der Haltung Ausr stung und Sicherheit ber Anatomie und Genetik bis hin zu Diagnose und Management von Krankheiten Aktuelle Informationen zur Varroa Milbe und anderen Bienensch dlingen werden pr sentiert ebenso eine Einf hrung zur Pharmakologie und Toxikologie bei Bienen und zur kologie einheimischer Bienen Inhalte des neuen Referenzwerks Leitfaden zur veterin rmedizinischen Betreuung von Honigbienen Informationen zu den Grundlagen der Haltung zu Untersuchung Verfahren F tterung u v m Erfolgreicher Umgang mit Fragen und Notf llen Mit n tzlichen Fotos Zeichnungen Tabellen und Grafiken Das Fachbuch richtet sich an Veterin rmediziner Studenten der Veterin rmedizin Veterin rtechniker Wissenschaftler und Bienenkundler Honey Bee Medicine for the Veterinary Practioner ist ein praxisorientiertes und umfassendes Nachschlagewerk ber die Gesunderhaltung von Honigbienen Relationships Between Brain Biogenic Amines and Reproductive and Defense Do Animals Think? Clive D. L. Wynne, 2013-10-31 Behavior in Honey Bees (apis Mellifers L.) Jeffrey Wayne Harris, 1996 Does your dog know when you ve had a bad day Can your cat tell that the coffee pot you left on might start a fire Could a chimpanzee be trained to program your computer In this provocative book noted animal expert Clive Wynne debunks some commonly held notions about our furry friends It may be romantic to ascribe human qualities to critters he argues but it s not very realistic While animals are by no means dumb they don't think the same way we do Contrary to what many popular television shows would have us believe animals have neither the theory of mind capabilities that humans have that is they are not conscious of what others are thinking nor the capacity for higher level reasoning So in Wynne s view when Fido greets your arrival by nudging your leg he s more apt to be asking for dinner than commiserating with your job stress That s not to say that animals don t possess remarkable abilities and Do Animals Think explores countless examples there s the honeybee which not only remembers where it found food but communicates this information to its hivemates through an elaborate dance And how about the sonar guided bat which locates flying insects in the dark of night and devours lunch on the wing Engagingly written Do Animals Think takes aim at the work of such renowned animal rights advocates as Peter Singer and Jane Goodall for falsely humanizing animals Far from impoverishing our view of the animal kingdom however it underscores how the world is richer for having such a diversity of minds be they of the animal or human variety **Honey Bee Biology** Brian R. Johnson, 2023-06-06 The most comprehensive and up to date general reference book on honey bee biology Honey bees are marvelously charismatic organisms with a long history of interaction with humans They are vital to agriculture and

serve as a model system for many basic questions in biology This authoritative book provides an essential overview of honey bee biology bringing established topics up to date while incorporating emerging areas of inquiry Honey Bee Biology covers everything from molecular genetics development and physiology to neurobiology behavior and pollination biology Placing special attention on the important role of bees as pollinators in agricultural ecosystems it incorporates the latest findings on pesticides parasites and pathogens This incisive and wide ranging book also sheds vital light on the possible causes of colony collapse disorder and the devastating honey bee losses we are witnessing today The study of honey bees has greatly expanded in recent years and there is more interest in these marvelous creatures than ever before Honey Bee Biology is the first up to date general reference of its kind published in decades It is a must have resource for social insect biologists scientifically savvy beekeepers and any scientist interested in bees as a model system Encyclopedia of Behavioral Neuroscience, 2010-06-03 Behavioral Neuroscientists study the behavior of animals and humans and the neurobiological and physiological processes that control it Behavior is the ultimate function of the nervous system and the study of it is very multidisciplinary Disorders of behavior in humans touch millions of people's lives significantly and it is of paramount importance to understand pathological conditions such as addictions anxiety depression schizophrenia autism among others in order to be able to develop new treatment possibilities Encyclopedia of Behavioral Neuroscience is the first and only multi volume reference to comprehensively cover the foundation knowledge in the field This three volume work is edited by world renowned behavioral neuroscientists George F Koob The Scripps Research Institute Michel Le Moal Universit Bordeaux and Richard F Thompson University of Southern California and written by a premier selection of the leading scientists in their respective fields Each section is edited by a specialist in the relevant area The important research in all areas of Behavioral Neuroscience is covered in a total of 210 chapters on topics ranging from neuroethology and learning and memory to behavioral disorders and psychiatric diseases The only comprehensive Encyclopedia of Behavioral Neuroscience on the market Addresses all recent advances in the field Written and edited by an international group of leading researchers truly representative of the behavioral neuroscience community Includes many entries on the advances in our knowledge of the neurobiological basis of complex behavioral psychiatric and neurological disorders Richly illustrated in full color Extensively cross referenced to serve as the go to reference for students and researchers alike The online version features full searching navigation and linking functionality An essential resource for libraries serving neuroscientists psychologists neuropharmacologists and psychiatrists The Future Role of Dwarf Honey Bees in Natural and Agricultural **Systems** DP Abrol, 2020-07-08 The future role of dwarf honeybees in natural and agricultural systems provides multidisciplinary perspective about the different facets of dwarf honeybees The role of dwarf honeybee Apis florea assumes utmost importance in the context of pollinator decline throughout the world threatening stability of ecosystems and global food security Apis florea is a low land species of south Asia extending more to the west than other Asiatic Apis species It is an

important pollinator of crops in hot and dry agricultural plains The book is first of its kind which deals in details on varied aspects of Apis florea biology management conservation strategies for protecting biodiversity and enhancing crop productivity The book aims to promote a large diverse sustainable and dependable bee pollinator workforce that can meet the challenge for optimizing food production well into the 21st century Features Apis florea provides source of livelihood in mountainous areas and marginal farmers This book will for the first time present the beekeeping from the perspective of agricultural production and biodiversity conservation An excellent source of advanced study material for academics researchers and students and programme planners Excellent pollinator of tropical and subtropical crops fruits vegetables etc less prone to diseases and enemies Covering the latest information on various aspects of Apis florea biology this book brings the latest advances together in a single volume for researchers and advanced level students This book will be useful to pollination biologists honeybee biologists in entomology departments students teachers scientists of agriculture animal behaviour botany conservation biology ecology entomology environmental biology forestry genetics plant breeding horticulture toxicology zoology seed growers and seed agencies and shall serve as reference book for students teachers researchers extension functionaries and policy planners Flowers and Honeybees Christopher Ketcham, 2020-05-11 Can we discover morality in nature Flowers and Honeybees extends the considerable scientific knowledge of flowers and honeybees through a philosophical discussion of the origins of morality in nature Flowering plants and honeybees form a social group where each requires the other They do not intentionally harm each other both reason and they do not compete for commonly required resources They also could not be more different Flowering plants are rooted in the ground and have no brains Mobile honeybees can communicate the location of flower resources to other workers We can learn from a million year old social relationship how morality can be constructed and maintained over time The Behaviour and Physiology of Bees Lesley J. Goodman, Roderick C. Fisher, 1991 Presents recent developments in the understanding of bee behaviour and physiology Based on a colloquium held in July 1990 organized by the Royal Entomological Society and the International Bee Research Association the book includes contributions from research workers in the USA and Europe Pheromones and Animal Behavior Tristram D. Wyatt, 2014-01-23 This book explains how animals use chemical communication emphasising the evolutionary context and covering fields from ecology to neuroscience and chemistry

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