

Ecologia De Vespas Sociais Hymenoptera Vespidae No

Arqueologia em Roraima: historico e evidencias de um passado distante. Os Wapishana nas fontes escritas: historico de um preconceito. Ocupacaoterritorial/macuxi: aspectos historicos e politicos. Terra, ecologia esaude indigena: o caso Yanomami. Plantas medicinais dos Yanomami. Oncocercose, uma endemia focal no hemisferio norte da Amazonia. A leishmaniose visceral (calazar) no Estado de Roraima. Os impactos ambientais esociais da mineracao informal na Amazonia. Historiografia das expedicoes cientificas e exploratorias no vale do rio Branco. A importancia das bases do INPA no desenvolvimento cientifico na Amazonia: o caso de Roraima. Mudancas climaticas e evolucao da paisagem em Roraima: uma resenha do Cretaceo ao recente. A formacao Boa Vista: o significado geomorfologico e geoecologico no contexto do relevo de Roraima. registros sedimentares de lagos e brejos dos campos de Roraima: implicacoes paleoambientais ao longo do Holoceno. Flutuacoes do limite floresta-cerradodurante o Holoceno em Roraima. Distribuicao das chuvas em Roraima. Roraima e o aquecimento global: balanço anual das emissões de gases do efeito estufa provenientes da mudanca de uso da terra. Materia organica do solo em Roraima. Ciclagem de nutrientes em florestas de terra firmena ilha de Maraca. A vegetacao de Roraima. Estufa e diversidade das florestas de terra firme na ilha de Maraca. A flora fanerogamica das savanas de Roraima. Registros palinologicos. Comparacao fitossociologica de quatro savanas de Roraima. Notas sobre insetos de Roraima. Informacoes preliminares sobre a bio-ecologia de peixes eletricos. similaridade entre localidades e associacoes entre tres especies de jacares em Roraima. Mamiferos de Roraima: status de diversidade e conservacao. Levantamento preliminar da avifauna em Roraima.

Table of contents

This book brings together a wide range of sampling methods for investigating different arthropod groups. Each chapter is organised to describe and evaluate the main sampling methods (field methods, materials and supplies, sampling protocols, effort needed, and limitations); in addition, some chapters describe the specimen preparation and conservation, species identification, data collection and management (treatment, statistical analysis, interpretation), and ecological/conservation implications of arthropod communities. The book aims to be a reference for zoologists, entomologists, arachnologists, ecologists, students, researchers, and for those interested in arthropod science and biodiversity. We hope the book will contribute to advance knowledge on field assessments and conservation strategies. Arthropods represent the most speciose group of organisms on Earth, with a remarkable number of species and interactions still to be described. These invertebrates are recognized for playing key ecological roles in terrestrial, freshwater and marine ecosystems. Because of the increasing and relentless threats arthropods are facing lately due to a multitude of human induced drivers, this book represents an important contribution to assess their biodiversity and role in ecosystem functioning and generation of ecosystem services worldwide.

History, Biodiversity, Threats and Opportunities of the Mega-diverse Forest

The Social Biology of Wasps

Ecological, Behavioral, and Theoretical Approaches

Rev Bras Biol

Research Handbook of Sustainability Agency

The Wasps

More often than not, when people think of a neotropical forest, what comes to mind is a rain forest, rather than a dry forest. Just as typically, when they imagine a savanna, they visualize the African plains, rather than those dry woodlands and grasslands found in the Neotropics. These same preconceptions can be found among scientists, as these ne

Ants have always fascinated the nature observer. Reports from ancient Egypt and Mesopotamia indicate that ants interested humans long ago. Myrmecology as a science had its beginning in the last century with great naturalists like Andre, Darwin, Emery, Escherich, Fabre, Fields, Forel, Janet, Karawaiew, McCook, Mayr, Smith, Wasmann and Wheeler. They studied ants as an interesting biological phenomenon, with little thought of the possible beneficial or detrimental effects ants could have on human activities (see Wheeler 1910 as an example). When Europeans began colonizing the New World, serious ant problems occurred. The first reports of pest ants came from Spanish and Portuguese officials of the fifteenth and sixteenth centuries in Trinidad, The West Indies, Central America and South America. Leaf-cutting ants were blamed for making agricultural development almost impossible in many areas. These ants, *Atta* and *Acromyrmex* species, are undoubtedly the first ants identified as pests and may be considered to have initiated interest and research in applied myrmecology (Mariconi 1970).

The Hymenoptera is one of the largest orders of terrestrial arthropods and comprises the sawflies, wasps, ants, bees and parasitic wasps. This book examines the current state of all major areas of research for this important group of insects, including systematics, biological control, behaviour and use in education.

A Handbook of Sampling Methods

Tropical Zoology

A pesquisa no Brasil: Ciências da vida
Natural History and Evolution of Paper-wasps
Pot-Pollen in Stingless Bee Melittology

In this edited collection, 17 internationally known authorities bring together the results of recent research on the natural history, ecology, behavior, morphology, and genetics of wasps as they pertain to the evolution of social behavior. The first part of the book opens with a review of the classification of the family Vespidae along with a revision of the subfamily Polistinae. Seven subsequent chapters deal with the natural history and social biology of each of the major taxa of social and presocial vespids. The second part of the book offers chapters on reproductive competition; worker polyethism; evolution of nest architecture, of queen number and queen control, and of exocrine glands; population genetics; the nutritional basis of social evolution; and the nest as the locus of social life. The final chapter is a comparative discussion of social behavior in the Sphecidae, the only family of wasps besides the Vespidae in which well-developed social behavior is known. Providing a wealth of information about the biology of wasps, this comprehensive, up-to-date volume will be an essential reference for entomologists, evolutionary biologists, behavioral ecologists, ethologists, and zoologists. Contributors: James M. Carpenter. David P. Cowan. Holly A Downing. Raghavendra Gadagkar. Albert Greene. James H. Hunt. Robert L. Jeanne. Makoto Matsuura. Robert W. Matthews. Hudson K. Reeve. Peter Frank Roseler. Kenneth G. Ross. J. Philip Spradbery. Christopher K. Starr. Stefano Turillazzi. John W. Wenzel. Mary Jane West-Eberhard.

It is a great privilege and pleasure for me to write the foreword to this book, which is the result of considerable effort on the part of Dr. Makoto Matsuura and Mr. Seiki Yamane. Such an introduction might sound like a cliché, but in this case the sentiments are real, since the preparation of this book really has been a laborious task. In fact, I think it would not be an exaggeration to say that such a book could only be published once every 100 years. I would like to explain why I regard this book as unique. It is well known that as social insects "hachi" (as bees and wasps are called in Japanese), as well as ants and termites, have a very different way of life from that of other insects. Each of these three groups has its own characteristics. Ants and hachi are classified in the same category; in other words, an ant is simply a wasp which has lost its wings and its sting, and has adapted itself to an underground life. Termites, on the other hand, are an aberrant cockroach, descended from a phyletic line which is completely different from that of ants and hachi, which undergo complete metamorphosis. On the other hand, ants and termites have a common feature: all members have adopted a social life.

American Museum Of Natural History, V112.

Trap-nesting Wasps and Bees: Life Histories, Nests, and Associates

Natural Enemies of Insect Pests in Neotropical Agroecosystems

Indice-catálogo médico paulista, 1860-1936

Basic and applied aspects

Homem, ambiente e ecologia no Estado de Roraima

A Binational Project of the U.S. National Museum of Natural History, Smithsonian Institution and the Instituto Nacional de Pesquisas Da Amazonia (INPA).

This book aims to address the importance of natural enemies and functional diversity for biological control in Neotropical agroecosystems. Several aspects related to the conservation of natural enemies, such as vegetation design and climate change, are discussed in Part 1 and the bioecology of several insects groups used in biological control in Latin America is presented in Part 2. Part 3 is devoted to mass production of natural enemies while Part 4 describes how these insects have been used to control of pests in major crops, forests, pasture, weeds and plant diseases. Lastly, Part 5 reports Latin-American experiences of integration of biological in pest management programs.

The diversity of social behaviour among birds and primates is surpassed only by members of the Hymenopteran insects (bees, ants, and wasps). The paper-wasps are a large and varied group, and have been studied extensively by a wide range of biologists interested in the evolution of sociality. This book is unusual in combining synthetic reviews and new, unpublished data with original ideas.

Marimbondos: Vespas Sociais Hymenoptera: Vespidae Editora UFV

Measuring Arthropod Biodiversity

Hymenoptera and Biodiversity

Handbook of Agricultural Entomology

Biological Control and Functional Biodiversity

Sociobiology

The Biology of Pseudoscorpions

This book covers pot-pollen—the other product, besides honey, stored in cerumen pots by Meliponini. Critical assessment is given of stingless bee and pot-pollen biodiversity in Africa, Asia and Oceania. Topics addressed include historical biogeography, cultural knowledge, bee foraging behavior, pollination, ecological interactions, health applications, microbiology, the natural history of bee nests, and chemical, bioactive and individual plant components in stored pollen. Pot-pollen maintains the livelihoods of stingless

many interesting biological products that are just now beginning to be understood. The Meliponini have developed particular nesting biologies, uses of building material for pollen storage. Environmental windows provide optimal temperature and availability of pollen sources for success in plant pollination and pollen storage. Palynological pollen taxonomy are used to assess stingless honey bee pollination services. Pollen processing with microorganisms in the nest modifies chemical composition and bioactive nutraceutical benefits to the honey and pollen widely relished by native people. Humans have always used stingless bees. Yet, sustainable meliponiculture (stingless beekeeping) has so far lacked a treatise on pot-pollen, which experts provide in this transdisciplinary, groundbreaking volume.

This book provides updated information on this intriguing and exciting group of insects: Neotropical Social Wasps. These insects have a particular biology and their colonies consist of a few cooperative females living in either small or massive, structured nests where stinging individuals organize their activities and defend their offspring. Topics include phylogeny, biogeography, post-embryonic development, community behavior and ecology, economic importance, and research methods.

Howard Evans was a brilliant ethologist and systematist, describing over 900 species in over a dozen entomology and natural history books. Upon his death in 2002, he left behind an unfinished manuscript, intended as an update of his classic 1966 work, *The Comparative Ethology and Evolution of the Sand Wasps*. O'Neill, Evans's former student and colleague, has now completed and enlarged this work into a tribe-by-tribe, species-by-species review of Bembicinae studies from the last four decades.

Neotropical Savannas and Seasonally Dry Forests

Fourteenth Annual Report (1 November 1992-31 October 1993)

Atlas of Biodiversity Risk

Hymenoptera, Apoidea

Relatório de atividades

A World Perspective

Handbook of Agricultural Entomology by Helmut van Emden is a landmark publication for students and practitioners of entomology applied to agriculture and horticulture. It can be used as a general reference or as a general textbook. The book opens with a general introduction to entomology and includes coverage of the major insects (and mites) that cause harm to crops, livestock and humans. The important pests are also included. Organisms are described in a classification of Insect Orders and Families. The emphasis is on morphological characters of major taxonomic divisions, "spot characters" for the recognition of pest species, and the life histories, damage symptoms and economic importance of the various pest species. The book is beautifully illustrated in full colour with more than 400 figures showing both the organisms and the damage they cause to plants with diagnostic characters indicated by arrows. Coverage is world-wide and includes much material stemming from the vast personal experience of the author. A companion website with additional resources is available at <http://www.wiley.com/go/vanemden/agriculturalentomology>

Omnipresent in virtually all terrestrial ecosystems and of undisputed ecological and economical importance, the study of social insects is an area that continues to attract a vast number of researchers. As a consequence, a huge amount of information about their biology and ecology has accumulated. Distilling this scattered information into a highly focused reference, *Food Exploitation by Social Insects: Behavioral, and Theoretical Approaches* unites traditional behavioral and ecological studies with theoretical and mathematical models. The book covers foraging ecology and behavior of social insects, communication mechanisms, and theoretical models of important aspects. It examines two different but inseparably interlaced levels of social insect foraging: the macroscopic or colony level and the individual level. The chapters include discussions of foraging decisions, patterns and strategies of social insect colonies, and information use and information transfer between workers. The book provides a fresh look on their topics, covering a wide range of subjects and recent scientific developments that are unprecedented in breadth and depth. The coverage of ants, bees, and wasps in one resource is a unique feature of the book. This taxonomic content combined with the variety of research approaches, allows the book to provide deeper insight into the subject.

The Atlantic Forest is one of the 36 hotspots for biodiversity conservation worldwide. It is a unique, large biome (more than 3000 km in latitude; 2500 in longitude), marked by high biodiversity, high endemism and, at the same time, extremely threatened. Approximately 70% of the Brazilian population lives in the area of this biome, which makes the conflict between biodiversity conservation and the sustainability of the human population a relevant issue. This book aims to cover: 1) the historical characterization and geographic variation of the biome; 2) the distribution of the diversity of some of the main threats to biodiversity, and 4) possible opportunities to ensure the biodiversity conservation, and the economic and social sustainability. Also, it is hoped that this book can be useful for the development of public policies aimed at the conservation of this important global biome.

A Study of the Classification of the More Primitive Non-Parasitic Anthophorine Bees

Evolution, Biodiversity and Biological Control

Hymenoptera

Revista Brasileira de biologia

Marimbondos: Vespas Sociais

The Social Wasps of the Americas Excluding the Vespinae

Pollination Biology reviews the state of knowledge in the field of pollination biology. The book begins by tracing the historical trends in pollination research and the development of the two styles of pollination biology. This is followed by separate chapters on the evolution of the angiosperms; the evolution of plant-breeding systems; the geographical correlations between breeding habit, climate, and mode of pollen transfer; and sexual selection in plants. Subsequent chapters examine the process of sexual selection through gametic competition in *Geranium maculatum*; the effects of different gene movement patterns on plant population structure; the foraging behavior of pollinators; adaptive nature of floral traits; and

competitive interactions among flowering plants for pollinators. The book is designed to provide useful material for advanced undergraduate and graduate students wishing to familiarize themselves with modern pollination biology and also to provide new insights into specific problems for those already engaged in pollination research. The book is intended to be used for both teaching and research.

Marimbondos – Vespas sociais (Hymenoptera: Vespidae) traz informações sobre ecologia, controle biológico, classificação, taxonomia e distribuição geográfica de todas as espécies de vespas sociais registradas até o momento em Minas Gerais, com registro fotográfico da maior parte das espécies, além de curiosidades, mitos e lendas envolvendo esses insetos sociais, popularmente chamados de marimbondos.

This innovative Research Handbook answers crucial questions about how individuals and organisations can make a difference towards sustainability. Offering an integrative perspective on sustainability agency, it reviews individual, active, organisational and relational forms of sustainability agency, demonstrating the capacity of individuals and organisations to act toward sustainable futures.

Food Exploitation By Social Insects

How Landscapes Change

Pollination Biology

Hymenoptera: Vespidae

Plant Diversity, Biogeography, and Conservation

Arthropods of Tropical Forests

North and South America share similar human and ecological histories and, increasingly, economic and social linkages. As such, issues of ecosystem functions and disruptions form a part of these cultures. This volume synthesizes the perspectives of several disciplines, such as ecology, anthropology, economy, and conservation biology. The chief goal is to gain an understanding of how ecological processes interact to affect ecosystem functions and species in the Americas. Throughout the text the emphasis is placed on habitat fragmentation. At the same time, the current theory, methods, and approaches used in the analysis of ecosystem disruptions and fragmentation.

Increasing attention has been focused on biodiversity in recent years, based on a number of arguments to justify the conservation of the world's flora and fauna. Such arguments may have potential for food or medicine - or ecological - that the extinction of any species affects the overall ecological balance. Little attention, however, has been focused on what impact on maintaining diversity. Hymenoptera is one of these groups. It not only forms a major component of diversity itself, but is vital in sustaining diversity in other groups. Hymenoptera (wasps, ants and sawflies) are major plant pollinators, seed dispersers and parasitoids and predators of other arthropods (and hence important in biological control). This volume the subject and concentrates on three key issues: how species of Hymenoptera affect diversity in other organisms; whether Hymenoptera is a group prone to extinction; and the consequences if they are differentially removed from terrestrial ecosystems. The book is essential reading for entomologists and those concerned with biodiversity and conservation.

The Atlantic Forest

The Sand Wasps

Human Disturbance and Ecosystem Fragmentation in the Americas

Neotropical Social Wasps

Biology of the Vespine Wasps

Applied Myrmecology