DESCRIPTION

This established, popular textbook provides a stimulating and comprehensive introduction to the insects, the animals that represent over half of the planet's biological diversity. In this new fourth edition, the authors introduce the key features of insect structure, function, behavior, ecology and classification, placed within the latest ideas on insect evolution. Much of the book is organised around major biological themes - living on the ground, in water, on plants, in colonies, and as predators, parasites/parasitoids and prey. A strong evolutionary theme is maintained throughout. The ever-growing economic importance of insects is emphasized in new boxes on insect pests, and in chapters on medical and veterinary entomology, and pest management. Updated 'taxoboxes' provide concise information on all aspects of each of the 27 major groupings (orders) of insects.

Key Features:

• All chapters thoroughly updated with the latest results from international studies

• Accompanying website with downloadable illustrations and links to video clips

• All chapters to include new text boxes of topical issues and studies

• Major revision of systematic and taxonomy chapter

• Still beautifully illustrated with more new illustrations from the artist, Karina McInnes

A companion resources site is available at www.wiley.com/go/gullan/insects. This site includes:

• Copies of the figures from the book for downloading, along with a PDF of the captions.
• Colour versions of key figures from the book

• A list of useful web links for each chapter, selected by the author.

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**ABOUT THE AUTHOR**

Penny Gullan and Peter Cranston are professors in the Department of Entomology, University of California, Davis, USA., where they jointly teach undergraduate courses in biodiversity, insect systematics and general entomology, and conduct research on Coccoidea and Chironomidae, respectively. They maintain strong connections to the Australian National University, Canberra, where, as Visiting Fellows, much of this fourth edition was revised.

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**NEW TO EDITION**

In the 5 years since the previous (3rd) edition of this textbook, the discipline of entomology has seen some major changes in emphasis. The opening up of global commerce (‘free trade’) has brought with it many accidental passengers, including both potential and actual pestilential insects of our crops, our ornamental plants, and our health. Efforts to prevent further incursions include increased surveillance, in what has become known as biosecurity, at our ports, airports and borders. Entomologists increasingly are employed in quarantine and biosecurity, where they predict threats, and are expected to use diagnostics to recognize pests and distinguish those that are new arrivals. The inevitable newly arrived and established pests must be surveyed and control measures planned. In this edition we discuss several of these ‘emergent’ threats from insects and the diseases that some can carry.

Molecular techniques of ever-increasing sophistication are now commonplace in many aspects of entomological study, ranging from genomic studies seeking to understand the basis of behaviors to molecular diagnostics and the use of sequences to untangle the phylogeny of this most diverse groups of organisms. Although this book is not the place to detail this fast-evolving field, it presents the results of many molecular studies, particularly in relation to attempts to reconcile different ideas on evolutionary relationships, where much uncertainty remains despite a growing volume of nucleotide sequence data. Since ever more insects have their complete mitochondrial genomes sequenced, and the whole nuclear genome is available for an increasing diversity of insects, there is much scope for comparative studies. Important insights have already come from the ability to ‘silence’ particular genes to observe the outcome, for example in aspects of development and communication.

In this edition of the textbook, the authors have updated and relocated the boxes concerning each major grouping (the traditional orders) from the chapter in which their generalized ecology placed them, to the end of the book, where they can be located more
easily. The updated chapter texts are supplemented with additional new boxes on topical subjects including *The African honey bee* and *Colony Collapse Disorder* (of bees) in the sphere of apiary, the use of *bed nets* and resurgence of *bed bugs*, *Dengue fever* and *West Nile Virus* in relation to human health, and some case studies in emergent plant pests, including the *Emerald ash borer* that is destroying North American landscape trees.

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