

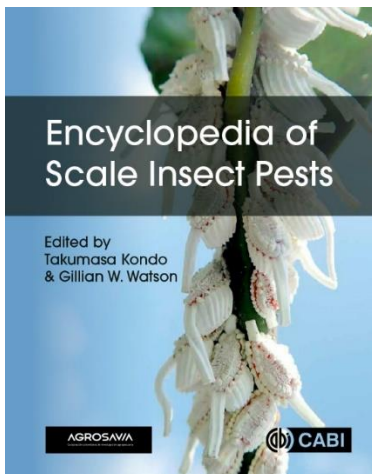
Reseña/ Book review

Encyclopedia of Scale Insect Pests

Enciclopedia de Plagas de Insectos Escama

 FRANCISCO SERNA ¹*

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Documentation of the diversity of scale insects (Hemiptera: Sternorrhyncha: Coccoomorpha), both beneficial and harmful to humans (especially in agriculture), has enjoyed enthusiastic and growing attention in recent decades. The Encyclopedia of Scale Insect Pests, edited and principally co-authored by Takumasa Kondo and Gillian W. Watson, is written with coherence and precision from the title to the final words. It contains contributions by 37 experts from the different biogeographic regions of the world, and covers the vast majority of scale species of global economic importance, 7.6% of the 8430 scale species known to date. In five informative and reader-friendly chapters and an exhaustive glossary of morphological, taxonomic and biological terms, the 634-page Encyclopedia treats 26 families in phylogenetic order, starting with the archaeococcoids (“primitive” scales) and ending with the neococcoids (“advanced” scales). For each of the 230 species considered in the work, valid taxonomic names, synonyms, common names, diagnoses for the recognition of individuals in the field, as well as slide-mounted adult females in the laboratory, are provided; also, the geographical distribution, host plants, plant damage, economic importance, reproductive biology, methods of dispersion, pest management, regulatory control, monitoring in the field and the literature consulted.

It is worth highlighting the excellent quality and meticulous detail of the images presented (both drawings and photographs) to support recognition in the field and the laboratory. Likewise, the diagnostic information provided is never limited to the live appearance only, but also includes characteristics of slide-mounted specimens. This modern, reader-friendly approach to distinguishing between similar species is a refreshing contrast to the traditional style of providing images with little or no explanation, leaving the interpretation of morphological details to the reader.

The direct applications of this work are countless. For example, in Chapter II, an extensive list of 640 scale insect species (belonging to 28 families) that have been reported as “pests” is presented. The list presents up-to-date scientific species names and their geographical distribution, making it possible to see which countries share the presence of a particular pest or to know which species are endemic to a certain region. The list constitutes a useful tool for monitoring the dispersion of these pests, valuable information that will help state institutions to organize their digital geographic information systems, enabling them to monitor the distribution and geographic dispersion of these economically important insects. Furthermore, at a different level, extension officers will find the association of common names with scientific names in the book facilitate communication of information to local communities who are not familiar with scientific terminology.

The Encyclopedia emphasizes several conceptual aspects that deserve to be highlighted, of which I will only mention three.

(1) "The first step towards any pest management strategy is the correct identification of the insect". With this statement, the Encyclopedia editors identify an important difference between entomology and other disciplines important in agriculture, such as phytopathology. As a starting point for integrated pest management, in phytopathology the recognition of the disease and its etiology is often more useful than identification of the pathogen itself. In contrast, all basic or applied work in entomology is based entirely on accurate identification of the species in question.

(2) "*The term 'pest' is completely anthropocentric, being defined as any organism that has a harmful impact on humans, their food or their living conditions, including organisms that act as vectors of diseases*" [vectors of pathogens]". This statement regarding the concept of "pest" is especially useful in the field of teaching and applied entomology. The editors are indicating that always labeling a particular biological taxon as a "pest" should be avoided. Currently, there are different methodologies with relatively simple mathematics that clearly allow a conclusion to be reached as to whether or not an insect population at a given place and time is a pest or not.

The authors further state that of the more than 8,000 known species of scale insects, only 7.6% of the species (covered in the Encyclopedia) have ever been considered "pests", and that it is therefore critical to understand that all scale insects (including "harmful" species) play an important role in their natural ecosystems, forming an integral part of food webs.

(3) "*This work is not intended to be used for identifying scale insect pests through color photographs alone, which is unreliable solely on live appearance. Identification should be carried out by specialists using microscopic features of slide-mounted specimens.*"

This aspect is of special importance. Errors in the identification of agricultural pests have led to great economic losses. Students and the general public must understand that taxonomists train for many years to reach the level of expertise needed to describe and identify scale insects based on their morphological details. A non-specialist in the taxonomic group should always seek the support of experts who know about the taxonomy of the insect pest that needs to be identified. The book will be very useful for national and international institutions providing phytosanitary services, and to those making decisions related to environmental services provided by biodiversity. Moreover, the work will also benefit a broad community of stakeholders including professors and students, researchers, and the general public concerned

with the protection and conservation of natural resources. Entomologists teaching the morphology, taxonomy and ecology of insects of agricultural importance will find this work to be a useful resource. This extensive and detailed book involved a titanic effort in its preparation and definitely deserves to be called an Encyclopedia.