

BOOK REVIEW

THE SOIL MITES OF THE WORLD. VOL. 1. PRIMITIVE ORIBATIDS OF THE PALAEARCTIC REGION. By J. Balogh & S. Mahunka. Series Editors: J. Balogh & S. Mahunka. Elsevier Science Publishing Co., Inc., P.O. Box 1663, Grand Central Station, New York, NY 10163, USA. 1983. 372 p. Price US\$106.50 (hardcover). Translated from Hungarian. Copyright Akadémiai Kiadó, Budapest, 1983.

The soil mites (Acari: Oribatida) have a greater population density and species diversity than any other terricolous arthropod group. It seems logical that knowledge of their distribution patterns would be an important prerequisite for ecological research involving energy flow, population biology, anthropogenic effects, etc. However, the lack of suitable keys for the identification of species has seriously restricted the accumulation and utilization of such data. Now, with a wealth of background information from lifetimes of systematic investigations, Balogh & Mahunka have taken a giant step toward rectifying that situation.

Volume 1 is the first of a 3-part series, *The soil mites of the world*, that provides brief characterizations of oribatid mites and identification keys with concurrent illustrations. This first volume encompasses the primitive species (Archoribatida) of the Palaearctic Region. The forthcoming 2nd and 3rd volumes will cover the higher oribatids (Euoribatida): Picnonoticae and Poronoticae. This series makes a significant advance over Balogh's (1972) *The oribatid genera of the world*, in that it not only brings the classification and descriptions up-to-date, but gives keys to "every hitherto described species" up to June 1980. Therefore, it should become an essential reference not only for acarologists, but for anyone seriously interested in terrestrial ecosystems.

After a cursory introduction to the volume, there is a short, concise (20 p.) "Terminology survey" based on the fundamental publications of Grandjean and his followers. It provides a lexicon of the most salient terms applied to morphological structures found in current oribatid articles, which are essential in utilizing the keys for the determination of species. This section, although derived from Balogh (1972), has been entirely rewritten and expanded to incorporate specific identifications as well as more recent literature references. For example, leg chaetotaxy was omitted from the Balogh text but here is included with descriptions of the chaetom plus figures of legs, palps, types of articulation between joints, etc. Further, these characteristics are found in the subsequent keys. Sections on reproduction and ontogenesis are welcome additions but, unfortunately, lack sufficient detail to even begin to support identification of the immature stages that abound in soil samples. The chapter ends with a "Key to symbols," a list of almost 100 abbreviations used in the preceding figures and the keys.

The 2 pages devoted to "Collecting and study technique" are much too brief for a beginner and much too superficial for an acarologist. In a book of this magnitude, it is regrettable that some essentials were sacrificed for brevity. A tremendous amount of research has been done on various techniques involved in the collection, preservation, and study of oribatid mites, and references to some of the more significant publications would have been beneficial and yet not have violated the obvious space constraints.

"Identification keys" occupies almost half of the volume; the 133 plates of illustrations increases the proportion to 85%. Obviously, therein lies the real strength of the volume, as there is no other single text that contains such information. Each species is discussed critically, supplemented with a differential diagnosis, and put into a functional key. In the past, a few investigators have constructed national keys to the Oribatida, but most oribatologists, because of the immensity of the subject, have been content to describe new species and genera, with occasional keys to families. Because of the great species diversity of oribatids mentioned above, the literature abounds with descriptions of new taxa in a multitude of languages, often in rather obscure journals. The difficulties of taxonomists in keeping current and in attempting to make accurate identifications of samples collected from various parts of the world are only too apparent. While the need for more and better systematic oribatologists increases, the obstacles and frustrations have been discouraging to new students. The publication of this series by Balogh & Mahunka should make the field of oribatology much more attractive.

The keys incorporate *New taxa in the system of the Oribatida*, by Balogh & Mahunka (1979). The Archoribatida (Macropylina or lower oribatids) consists of 5 supercohorts based partly on Grandjean (1969) and Balogh (1972); these are further subdivided into 25 superfamilies, 33 families, 88 genera, and over 400 species, not including the "Species inquirendae," which are listed at the end of each specific key. Also, following each key is a "Species interpretabilis," a complete list of pertinent references for included species. It is lamentable that the book is limited to the Palaearctic Region. There are a few errors in documentation, e.g., "Archeonothridae Grandjean, 1954" should be 1932, "*Nothrus anauniensis* Canestrini & Fanzago, 1877" should be 1876, "*Heminothrus* Berlese 1917" (p. 186) should be 1913, etc. However, on the whole, the keys are completely and accurately constructed, easy to read and use, and should be a boon to all acarological taxonomists.

The "Literature citations" (328), essential to consulting original references, were lacking in Balogh's (1972) previous book. There are a few errors: "Balogh (1961)" is listed twice; "Berlese, *Acari nuovi* 3 (1904)" should be 1905; "Niedbała (1973) p. 59-73" should be p. 59-64; "Piffi (1963) p. 24-30" should be p. 1-7; "Piffi (1966) p. 162-169" should be p. 1-9; etc. Also, there are some omissions of references named in the text: Berlese (1887), Jeleva (1970), Lange (1975), Märkel (1963), Scopoli (1763), Sitnikova (1975), etc.

The 133 plates consist of all new figures redrawn from the original publications, and their reproduction is excellent. They are of sufficient size, details clearly defined, and diagnostic features are readily identifiable. The plates are numbered to follow the listing of species and include not only drawings of each adult but also the differential characters referred to in the keys.

This is a very important book on a highly specialized subject. It is not for the general entomologist or ecologist, but for the dedicated student of soil mites and biocenology. It establishes a sound basis for further taxonomic studies and should stimulate research on the roles of oribatids in nutrient cycling and energy flow in terrestrial ecosystems as well as indicators of human activity. The publication price is high, but not inconsistent with other technical books. It should be on the shelf of every oribatologist and most acarologists and should be in the library of every department, college, university, and governmental agency that concerns itself with ecology and acarology. The authors are to be commended for a well-done and excellently presented piece of work and should be encouraged to complete the other 2 volumes in the series as soon as possible.

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