Acta Protozool. (2003) 42: 81 - 82

ACTA
PROTOZOOLOGICA

Book Review

Soil Ciliates (Protozoa, Ciliophora) from Namibia (Southwest Africa), with Emphasis on Two Contrasting Environments, the Etosha Region and the Namib Desert. Part I. Text and Line Drawings. Part II. Photographs. W. Foissner, S. Agatha and H. Berger. Denisia, Vol. 5. Linz, Austria. 2002. ISSN 1608-8700. 1459 pp., 443 figures, 203 tables, hard covers. 150 € (*ca* $150 U.S.)

Once again, Wilhelm Foissner (and colleagues) have produced a monumental profusely illustrated taxonomic work on the ciliated Protozoa, this time requiring two volumes. Emphasis is on generic and species uniquenesses and on diversity and community structure within restricted habitats (collections were taken from some 73 specific sites) located in the Namibian area of Southwest Africa. It is to be noted that most "classical" types of fresh-, estuarine, and salt-water habitats, although present in Namibia, were deliberately excluded from the present (time-limited and already massive!) research project on principally soil forms. The monograph is in English!

As typical of the experienced Foissner teams, taxonomic study techniques included observations on living material, TEM and (mostly) SEM ultrastructural methods, and wide employment of silver impregnation for examination by light microscopy of carefully fixed specimens. Type material (preserved on *ca* 800 slides) has been deposited in the Museum of Upper Austria in Linz. Rules from the latest edition of the International Code of Zoological Nomenclature have been followed rigorously.

The fine illustrations merit special comment. Actual figures number far more than the "443" mentioned in the heading of this review. Typically, one "Figure" alone contains multiple drawings or photographs of a given species, including different body views and highlighting different organelles or particular structures or stages in the life cycle of the organism. For admittedly perhaps an extreme example of such multiplicity, 13(!) plates/pages of Vol. II are devoted to such figures of the single colpodid species *Exocolpoda augustini* (for which a new genus has been created). The entire 395 pages of Vol. II are filled with 2500 excellent photographs! The first 79 of them are in color, the remaining black-and-white ones average over half-dozen to a "Figure" and are mainly of living organisms, silver impregnated specimens, or SEM images. A few collection sites have also been photographed.

In the 1063 pages of Part I (Vol. I of the set), we find another 221 Figures (with multiple line drawings per "Figure") of the same - and sometimes different - species as those displayed so beautifully in the much slimmer Part II (Vol. II). But here, of course, we also find the text of the whole monograph and the full taxonomic (and nomenclatural) identifications or descriptions of some 365 species, new (*ca* 40%) and/or old, included in the overall study. Involved as well are descriptions of a new order and suborder, three new families, and 33 new genera and subgenera. And there is a 100-page section on ecology with emphasis on species distribution and their community structure. The great majority of the 203 Tables in this monograph is devoted to detailed morphometric data on the individual species studied.

In addition to the helpful "summarizing" tables near the beginning of Vol. I, where all species involved are listed and very briefly identified, the volume concludes with an extensive Systematic Index of 16 pages. Here, bonafide (valid, acceptable, "good") species, genera, etc. and their names are helpfully differentiated by type of print from the non-acceptable (in the authors' opinion). Multiple page numbers supplied refer only to locations in Vol. I; however, when one consults such pages, one discovers references to pages of Vol. II where photographic figures are found for many species.

A special word should also be said about the 21-page References section (located in Vol. I, just preceding the Systematic Index). It is a treasure trove indeed of ciliate literature relevant to the topics treated in the monograph, including older as well as very recent papers of significance. Out of the total of some 525 titles given, well over 20% represent publications - *not* inappropriately - from the Foissner school (with 86 of them sole- or senior-authored by Wilhelm Foissner himself). They offer evidence not only of Foissner's experience in taxonomic ciliatology built up over the past 25 years but also of his leadership ability. Incidentally, there are still additional (non-cited) papers by the prolific Austrian, and another big monograph is currently in press.

This review is not the place for a discussion of some of the controversial matters in modern ciliate biology, taxonomy, and ecology; for example, those involving the definition of a "true" species or endemism *versus* ubiquity of diverse species around the world. The Foissner school's view on such topics is generally the opposite to that of what we may call the Finlay-Fenchel-Esteban school's view. The latter group has offered data in support of its contention that most, probably all, free-living species are, or potentially are, cosmopolitan in nature. Thus only a few, generally the so-called cryptic species, may remain largely undescribed. Foissner, on the other hand, feels strongly that *his* researches prove beyond doubt that new species, many considered "endemics" geographically, exist in abundance awaiting proper taxonomic description. It is true that numerous general biologists, apparently plus many phycologists and some other protistologists, have an "intuitive feeling," at least, that protistan species yet-to-be-described (free-living and parasitic) may number in the tens of thousands. So the controversies mentioned briefly above probably require further studies for clearer resolution.

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