

**Soil Protozoan Diversity: The State of Art (Kurzfassung)**

von

Foissner, W.\*

Soil protozoa have been neglected by both, ecologists and taxonomists. For a long time the view prevailed that protozoan diversity is low in soil and most species are common forms also found in freshwater and activated sludge. It was only during the past 20 years that Bonnet's and Foissner's group provided convincing evidences for a large number of autochthonous testate amoebae and ciliate species in terrestrial biotopes (moss, litter, soil proper). Many have environmental-related morphological and/or physiological adaptations, e.g. the mycophagous ciliates, which are r-selected and evolved a very complicated feeding tube to penetrate fungal hyphae and conidia.

To date, about 400 species of ciliates, 260 of flagellates, 200 of testate amoebae, and 60 of naked amoebae have been reported to occur in terrestrial biotopes. As concerns ciliates, I have 200 further (new) species in my unpublished notes. Thus, about 600 soil ciliates are known, 400 of which are very likely restricted to that biotope. Certainly, this is only a small proportion of the species actually inhabiting soil because, on average, I found one new species in each soil sample I investigated during the past five years. I thus estimate that there are at least 4000 species of soil ciliates, which would equal the number presently known from freshwater. Possibly, this is a conservative estimation considering that more than 90 % of the soils worldwide never have been explored systematically for ciliates and other protozoa. To mention only one example: in 12 soils samples from the Etosha Pan in Namibia (Africa), I found 153 ciliate species, 53 of them were new to science. Detailed studies may show that the same applies to other groups of protozoa too. Unfortunately, the chance that we ever can explore this nice diversity is minimal because taxonomists are decreasing in number and expertise and biotopes are devastated worldwide.

**Key literature**

Bonnet, L. (1964) Le peuplement thécamoebien des sols. *Revue Écol. Biol. Sol.* 1: 123-408.

Foissner, W. (1987) Soil protozoa: fundamental problems, ecological significance, adaptations in ciliates and testaceans, bioindicators, and guide to the literature. *Progress in Protistology* 2: 69 - 212.

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\*Universität Salzburg, Institut für Zoologie, Hellbrunnerstr. 34, A-5020 Salzburg Austria