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De Nederlandse watermijten (Acari: Hydrachnidia). The Dutch water mites (Acari: Hydrachnidia). Harry Smit

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Book review



At the end of 2018 we were surprised with a new volume of the Dutch Entomological Keys, freely distributed to subscribers of the journal Nederlandse Faunistische Mededelingen (Dutch Faunistic Communications) with two volumes annually. This Keys volume, number 11, written by Harry Smit, deals with al 273 Dutch species of water mites, recorded since the first works of A.C. Oudemans late 19th century (period 1898-1937). Other important investigations in the Dutch water mite fauna were done by G. Romijn (period 1915-1924), A. J. Besseling (period 1930-1968), who prepared the first checklist of the Netherlands in 1932, and of course Harry Smit himself (period 1992 till present). Next to a key to the species also information is given on phenology of the adults and distribution maps in three periods: prior to 1970, 1970-2000 and since 2000. Distribution maps, phenology data and environmental characteristics, such as lentic

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or lotic water, salinity or eutrophication are based on a total of nearly 200.000 records. For a small country like the Netherlands an impressive amount! In general one may conclude that the parts of the Netherlands on clay soils are comparatively poor in species, while the peat areas and sandy soil areas are moor rich in species. Thanks to the European Water Framework Directive, which has been a stimulus to improve water quality in the sandy areas, a number of species increased again recently. Species that increased in distribution are: *Atractides distans, Aturus fontinalis, A. rotundus, Hydrodroma torrenticola, Hygrobates calliger, H. longiporus, Lebertia insignis, L. pusilla, L. rivulorum, L. fimbriata, L. glabra, Ljania bipillata, Mideopsis crassipes, Protzia eximia, Sperchon clupeifer, S. compactilis, S. setiger, S. thienemanni, S. turgidus, Sperchonopsis verrucosa, torrenticola amplexa* and *Wettina podagrica*. In the peatland area in the western part of the country a number of species declined: *Arrenurus batillifer, A. cuspidator, A. fimbriatus, A. inexploratus, A. integrator, A. knauthei, A. maculator, a. perforatus, A. stecki, Brachypoda versicolor, Eylais discreta, e. extendens, Hydrachna crassipalpis, H. leegei, Hydryphantes crassipalpis, Midea orbiculata, Neumania spinipes, Pionacercopsis vatrax, Tiphys ornatus* and *Unionicola figuralis*. These species seem to decline due to eutrophication of the water system, as most of these species usually occur at low nutrient concentrations. Three species are mentioned as new for the Netherlands: *Lebertia holsatica* (in a seepage swamp), *Sperchon glandulosus* (in a brook), both from the most south-eastern part of the country, and *Arrenurus denticultatus* (in a dune pond) in the south-western part of the Netherlands.

Next to the key to the adults of all Dutch species and the mentioned distribution details over three time periods, the book contains a number of general sections. A few pages on life history, study methodology, description and explanation of all morphological characteristics needed for identification, and an overview on the systematics of the subcohort Hydrachnidia (Hydrachnidiae in Krantz & Walter (2009). Nomenclature follows Davids et al. (2007), Di Sabatino et al. (2010) and Gerecke et al. (2016), who solved a number of taxonomical problems in European water mites. The key are easy accessible as systematics is not strictly followed: species key out early on specific characteristics. Separation of male and female key where necessary. Almost 1000 drawings of morphological details are given, which facilitates identification even more.

Life history of water mites is partly comparable with the related subcohort Trombidiae in the cohort Parasitengona: larvae are in majority parasitic on insects. The major difference is that in Trombidiae larvae are mostly described and well-known, while adults are frequently unknown, whereas in water mites it is the other way round. Most of the species in the Netherlands are larval parasites of mature water insects, predominantly on chironomids, even when these leave the water. The question arises now whether the abiotic specifications given for the water mites actually reflect those of their hosts, as most of the mites are very host specific (even in terms of location on the host). When this assumption is true, water mites may lose their important identification function for water quality. Nevertheless, it is a pity that these ecological relationships are mostly lacking in this overview. Only a few exceptions are mentioned, such as the species that live inside freshwater sponges and freshwater mussels and a few that lack the parasitic phase, where the nymph directly hatches from the egg. All in all, this is the most complete overview of water mite distribution and phenology and the author is to be congratulated with performing such a laborious task. For every acarologist interested in water mites in Europe a must-have, as well as for most of ecologists in water authorities or in other ways have to deal with water quality.

Smit, H. De Nederlandse watermijten (Acari: Hydrachnidia), Entomologische Tabellen 11, 298 pages, distribution maps for all 273 species, 67 figures on species phenology data for the most abundant species, hundreds of clear drawings of morphological details needed for identification and numerous very nice in situ photographs.

Publishers: Nederlandse Entomologische Vereniging, Naturalis Biodiversity Center, EIS Kenniscentrum insecten en andere ongewervelden. ISSN 1875-760X. Price € 17,50. To be ordered at https://www.eis-nederland.nl/et.

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