



Zootaxa 3720 (1): 001–075
www.mapress.com/zootaxa/

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Monograph

ISSN 1175-5326 (print edition)

ZOOTAXA

ISSN 1175-5334 (online edition)

<http://dx.doi.org/10.11646/zootaxa.3720.1.1>

<http://zoobank.org/urn:lsid:zoobank.org:pub:E4F362CE-0F00-4C1D-9DF6-139F824815C9>

ZOOTAXA

3720

The water mite family Mideopsidae (Acari: Hydrachnidia): a contribution to the diversity in the Afrotropical region and taxonomic changes above species level

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Magnolia Press
Auckland, New Zealand

Accepted by P. Martin: 29 Aug. 2013; published: 10 Oct. 2013

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(*Zootaxa* 3720)

75 pp.; 30 cm.

10 Oct. 2013

ISBN 978-1-77557-274-9 (paperback)

ISBN 978-1-77557-275-6 (Online edition)

FIRST PUBLISHED IN 2013 BY

Magnolia Press

P.O. Box 41-383

Auckland 1346

New Zealand

e-mail: zootaxa@mapress.com

<http://www.mapress.com/zootaxa/>

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ISSN 1175-5326 (Print edition)

ISSN 1175-5334 (Online edition)

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Abstract

A rearrangement of genera and subgenera in the water mite family Mideopsidae is proposed, resulting in the following changes: Mideopsellinae Lundblad, 1937 and Phreatomideopsinae Schwoerbel, 1986 are synonymized with Mideopsidae Koenike, 1910; *Djeboa* K. Viets, 1911, *Mideopsides* Lundblad, 1943, *Neoxystonotus* Lundblad, 1927, *Octomideopsis* K. Viets, 1931 and *Xystonotus* Wolcott, 1900 are redefined and proposed as distinct genera. A global key for the genera of the family is given.

New records of water mites of the genus *Djeboa* K. Viets, 1911, *Xystonotus* Wolcott, 1900 and *Mideopsellides* K.O.Viets, 1962 (Acari: Hydrachnidia, Mideopsidae) from the Afrotropical region are presented. Twenty species new to science are described, i.e., *Djeboa amendano* (Madagascar), *D. amethystica* (Madagascar), *D. angulipalpis* (Madagascar), *D. coelestinica* (Madagascar), *D. crocodilorum* (South Africa), *D. curtupalpis* (Ghana), *Djeboa depressa* (Côte d'Ivoire), *D. dinosaurophila* (South Africa), *D. elephantina* (Côte d'Ivoire), *D. ghanaensis* (Ghana), *D. gledhilli* (Côte d'Ivoire, Ghana), *D. globulipalpis* (South Africa, Ghana), *D. granatica* (Madagascar), *D. mandena* (Madagascar), *D. maromandia* (Madagascar), *D. nzia* (Côte d'Ivoire), *D. turmalinica* (Madagascar), *D. vanilla* (Madagascar), *D. wondergemii* (Ghana) and *Xystonotus madagascariensis* (Madagascar); a first description of the male is given for *Djeboa bimaculata* (Cook, 1966). A key for all species of the *Djeboa* is presented.

Key words: Acari, water mites, new species, Africa, Ethiopis, taxonomy.

Introduction

The fact that most of the presently known 113 species of the water mite family Mideopsidae (Zhang et al. 2011) are recorded from the northern hemisphere certainly does not reflect the real zoogeographical situation in this clade. To date, 16 species of the family Mideopsidae have previously been described from the Afrotropical region (Cook 1966, K.O.Viets 1970), 13 of the genus *Djeboa*, one of the genus *Mideopsellides* (*M. geae* K.O.Viets, 1962) and two of the genus *Mideopsis*, *M. minuta* Soar, 1910 ascribed to the subgenus *Octomideopsis* K. Viets, 1931, and *Mideopsis* (*Mixomideopsis*) *sandola* Cook, 2001 from South Africa.

Field work done during the past decades in Côte d'Ivoire (Bernhard Statzner 1977–78), South Africa (David Cook 1984, Harry Smit 2004), Madagascar (Reinhard Gerecke and Tom Goldschmidt 2001, Gerecke 2011) and Ghana (Harry Smit 2004, 2013) resulted in the discovery of 20 species new to science which will be presented in this paper. For the afrotropical mideopsid fauna, this means an increase in our taxonomic knowledge by over 120 %, but the area remains further poorly studied in many parts, and many further undescribed species can be expected.

The taxonomic treatment of numerous new species gives us the occasion for a general discussion of the systematic position of mideopsid genera and subgenera.

Material and methods

Water mites were collected and treated in the laboratory as described by Gerecke *et al.* (2007). The material from Côte d'Ivoire was captured from January 1977 to January 1978 at five sampling sites (Bocanda, Kolomikro, Fetekro, Oukoukro and Tinbè) of the temporary river N'Zi, in monthly samples of one day drift and one night drift respectively (see Hevers 2010, for additional informations on the sampling methods and characteristics of the river N'Zi). Slide-mounting was done partly in Hoyer's fluid, partly in glycerin jelly. Mites from the collections done by Gerecke in 2011 are preserved in pure ethanol and are available for future molecular studies. Holotypes of new species from Madagascar and Statzner's collections are deposited in Senckenberg Museum in Frankfurt (SMF), new species from South Africa collected by David Cook in the National Museum in Bloemfontein (BMSA), and type material collected by Harry Smit in the Naturalis Biodiversity Center in Leiden (RMNH).

The composition of the material is given as: males/females/deutonymphs. All measurements are given in μm . The following abbreviations are used: Ac-1 = first acetabulum, asl. = above sea level, Cx-I = first coxae, Cxgl-2 = coxoglandulae 2, DC = collecting site Cook, dL = dorsal length, FMC = Field Museum Chicago, H = height, L = length, I-L-6 = Leg 1, sixth segment (tarsus), n = number of specimens examined, NP = national park, P-1 = palp, first segment, vL = ventral length, W = width.