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## Torrenticolid water mites (Acari: Hydrachnidia: Torrenticolidae) from Ghana

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## Abstract

New records of water mites of the family Torrenticolidae (Acari: Hydrachnidia) from streams in Ghana are presented. One new subgenus, *Vietsclio* n. subgen., is erected to accommodate *Monatractides uniscutatus* (K. Viets, 1925), characterized by the presence of swimming setae on leg II–IV. Seven new species are described: *Neoatractides (Allotorrenticola) erato* n. sp., *Monatractides (Monatractides) euterpe* n. sp., *M. (M.) melpomene* n. sp., *M. (M.) polyhymnia* n. sp., *M. (M.) thalia* n. sp., *M. (M.) terpsichore* n. sp., *M. (M.) urania* n. sp. *Torrenticola calliope* is established as the new name for previously reported populations of *T. harrisoni* K. Viets, 1956 from Ethiopia. The first description of the female is given for *Monatractides (Monatractides) acutiscutatus* (K. Viets, 1914) and *M. (Vietsclio) uniscutatus* K. Viets 1925. The subgenus *Allotorrenticola* Cook, 1967, previously known only from Asia, is reported for the first time from the Afrotropical region. Additionally, first records for Ghana are given for *Torrenticola anomallela* Cook, 1966, *T. bomiensis* Cook, 1966, *T. fasciata* (K. Viets, 1916), *T. motasi* Cook, 1966, *T. harrisoni* K. Viets, 1956, *Pseudotorrenticola mitchelli* Cook, 1966, *Monatractides (Monatractides) acutiscutatus* (K. Viets, 1914), *M. (M.) convexiscutata* (K. Viets, 1958), *M. (M.) koenikei* (K. Viets, 1916), *M. (M.) stigeophora* (Cook, 1966), *M. (M.) ventriosus* (K. Viets, 1916), *M. (M.) microstoma* Koenike, 1898—species complex, and *M. uniscutatus* (K. Viets 1925).

**Key words:** Acari, water mites, running waters, Ghana, Afrotropical region

## References

- Cook, D.R. (1966) The water mites of Liberia. *Memoirs of the American Entomological Institute*, 6, 1–418.
- Cook, D.R. (1967) Water mites from India. *Memoirs of the American Entomological Institute*, 9, 1–411.
- Cook, D.R. (1979) New water mite species from tropical Africa (Acari: Hydracarina). *International Journal of Acarology*, 5 (3), 199–211.  
<http://dx.doi.org/10.1080/01647957908683150>
- Cook, D.R. (1980) Studies on neotropical water mites. *Memoirs of the American Entomological Institute*, 31, 1–645.
- Di Sabatino, A. & Gerecke, R. (1996) An Interesting New Water Mite (Acari, Actinedida, Torrenticolidae) from Springs and Interstitial Waters of Corsica and Sardinia. *Aquatic Insects*, 18 (3), 185–191.  
<http://dx.doi.org/10.1080/01650429609361621>
- Di Sabatino, A., Gerecke, R., Gledhill, T. & Smit, H. (2010) Acari: Hydrachnidia II. In: Gerecke, R. (Ed.), *Chelicerata: Acari II. Süßwasserfauna von Mitteleuropa. Vol. 7. 2–2*, Elsevier Spektrum Akademischer Verlag, Heidelberg, pp. 1–234.
- Gerecke, R. (2009) Revisional studies on *Thoracophoracarus* K. Viets, 1914 (Arachnida, Acari, Hydrachnidia, Arrenuridae). *Zoosystema*, 31, 127–145.  
<http://dx.doi.org/10.5252/z2009n1a7>
- Gerecke, R., Weigmann, G., Wohltmann, A. & Wurst, E. (2007) Order Acari—General introduction and key to the major groups. In: Gerecke, R. (Ed.), *Chelicerata: Araneae, Acari I. Süßwasserfauna von Mitteleuropa. Vol. 7. 2–1*, Elsevier Spektrum Akademischer Verlag, München, pp. 14–537.
- Gledhill, T. (2003) A new genus and species of water mite (Acari: Hydrachnidia: Hygrobatidae) from the prosobranch Gastropod *Lanistes libycus* (Morelet) (Streptoneura: Ampullariidae) in Nigeria. In: Smith, I.M. (Ed.), *An Acarological Tribute to David R. Cook (From Yankee Springs to Wheeny Creek)*, Indira Publishing House, W. Bloomfield, pp. 75–82.
- Gledhill, T. & Agbolade, O. (2006) A new species of water mite (Acari: Hydrachnidia: Hygrobatidae) from the mantle cavity of the prosobranch gastropod *Potadoma moerchi* (Reeve) (Streptoneura: Thiaridae) in Nigeria. *Zootaxa*, 1160, 37–47.
- Gledhill, T. & Vidrine, M.F. (2002) Two new sympatric water-mites (Acari: Hydrachnidia: Unionicolidae) from the mutelid bivalve *Aspatharia sinuata* (von Martens) in Nigeria with some data on unionicoline-bivalve relationships. *Journal of Natural History*, 36 (11), 1351–1381.  
<http://dx.doi.org/10.1080/00222930110051734>
- Goldschmidt, T. (2007) Studies on Latin American *Torrenticola* Piersig, 1896 (Torrenticolidae, Hydrachnidia, Acari). *Zoological Journal of the Linnean Society*, 150, 443–678.  
<http://dx.doi.org/10.1111/j.1096-3642.2007.00305.x>
- Goldschmidt, T. & Smit, H. (2009) Studies on torrenticolid water mites mainly from South Africa - *Torrenticola* Piersig, 1896 and *Monatractides* K. Viets, 1926 (Acari: Hydrachnidia: Torrenticolidae). *International Journal of Acarology*, 35 (3), 179–234.  
<http://dx.doi.org/10.1080/01647950902980286>
- Hevers, J. (2010) Die *Unionicola*-Arten (Acari: Hydrachnidia) des temporären Flusses N’Zi in der Elfenbeinküste, Westafrika. *Stuttgarter Beiträge zur Naturkunde A, Neue Serie* 3, 33–78.
- Koenike, F. (1898) Hydrachniden-Fauna von Madagaskar und Nossi-Bé. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft in Frankfurt am Main*, 21 (2), 295–435.
- Lundblad, O. (1941) Neue Wassermilben. Vorläufige Mitteilung. *Entomologisk Tidskrift*, 62 (1–2), 97–121.
- Lundblad, O. (1952) Hydracarininen von den ostafrikanischen Gebirgen. *Arkiv för Zoology*, Serie 2, 3 (31), 391–525.
- Motas, C. & Tanasachi, J. (1968) Quelques Hydrachnellae (Acari) du Nil Bleu, de la rivière Takaze et du Lac Tana (Ethiopie). *Israel Journal of Zoology*, 16 (4), 171–192. [1967]
- Pešić, V. & Smit, H. (2009) Water mites of the family Torrenticolidae Piersig, 1902 (Acari: Hydrachnidia) from Thailand, Part I. The genera *Torrenticola* Piersig, 1896, *Neoatractides* Lundblad, 1941 and *Pseudotorrenticola* Walter, 1906. *Zootaxa*, 1982, 38–62.
- Pešić, V. & Smit, H. (2011) Water mites of the genus *Monatractides* Viets (Acari: Hydrachnidia, Torrenticolidae) from New Guinea, with descriptions of nine new species. *Zootaxa*, 2779, 39–62.
- Pešić, V., Smit H. & Saboori, A. (2012a) Water mites delineating the Oriental and Palaearctic regions - the unique fauna of southern Iran, with descriptions of one new genus, one new subgenus and 14 new species (Acari: Hydrachnidia). *Zootaxa*, 3330, 1–67.
- Pešić, V., Valdecasas, A. G. & Garcia-Jimenez, R. (2012b) Simultaneous evidence for a new species of *Torrenticola* Piersig, 1896 (Acari, Hydrachnidia) from Montenegro. *Zootaxa*, 3515, 38–50.
- Pešić, V., Cook, D., Gerecke, R. & Smit, H. (2013) The water mite family Mideopsidae (Acari: Hydrachnidia): a contribution to the diversity in the Afrotropical region and taxonomic changes above species level. *Zootaxa*, 3720 (1), 1–75.  
<http://dx.doi.org/10.11646/zootaxa.3720.1.1>
- Smit, H. (1994) New species of water mites from West Africa (Acari, Hydrachnellae), including a checklist of species recorded from Cameroon. *Storkia*, 3, 5–11.
- Smit, H. (2012a) New records of the water mite family Arrenuridae from the Afrotropical region, with the description of 11 new species and two new subspecies (Acari: Hydrachnidia). *Zootaxa*, 3187, 1–31.
- Smit, H. (2012b) First record of the water mite genus *Momonides* Lundblad from the Afrotropical region (Acari: Hydrachnidia:

- Momoniidae). *Systematic & Applied Acarology*, 17, 346–348.  
<http://dx.doi.org/10.11158/saa.17.3.13>
- Smit, H., Pešić, V. & Mary-Sasal, N. (2010) Second contribution to the knowledge of water mites from the Comoros, with the description of one new species (Acari: Hydrachnidia). *Zootaxa*, 2413, 51–60.
- Viets, K. (1913/1914) Hydracarina-Fauna von Kamerun. *Archiv für Hydrobiologie und Planktonkunde*, 9 (1), 1–52 + Taf. 1–4 [1913], 9 (2), 177–225 + Taf. 5–7 [1914], 9 (3), 331–338 + Taf. 9–12 [1914].
- Viets, K. (1916) Ergänzungen zur Hydracarina-Fauna von Kamerun. (Neue Sammlungen). *Archiv für Hydrobiologie und Planktonkunde*, 11 (2), 241–305 + Taf. 1–6, 11 (3), 335–403 + Taf. 8–13.
- Viets, K. (1925) Nachträge zur Hydracarina-Fauna von Kamerun. (Sammlungen aus Kamerun, Span. Guinea und Fernando Poo). *Archiv für Hydrobiologie*, 16 (2), 197–242 + Taf. 3–8.
- Viets, K. (1931) Bemerkungen zur Kenntnis der Wassermilben. *Zoologischer Anzeiger*, 93 (7–10), 208–227.
- Viets, K. (1953) Die aus Afrika bekannten Wassermilben (Hydrachnellae, Acari). *Hydrobiologia*, 5 (1–2), 1–178.  
<http://dx.doi.org/10.1007/bf00023587>
- Viets, K. (1956) Wassermilben aus Südafrika. Systematische, faunistische und ökologische Untersuchungen. *Zoologische Jahrbücher Abteilung für Systematik, Geographie und Biologie der Tiere*, 84 (1), 1–31.
- Viets, K. (1958) Bemerkungen zu zwei afrikanischen Torrenticola-Arten (Hydrachnellae, Acari). *Zoologischer Anzeiger*, 161 (3–4), 90–104.
- Viets, K.O. (1965) Über afrikanische Torrenticola-Arten (Hydrachnellae, Acari). *Gewässer und Abwässer*, 39–40, 125–138.
- Viets, K.O. (1970) Unser Zuwachs an Kenntnissen über die aus Afrika bekannten Wassermilben (Hydrachnellae, Acari). *Hydrobiologia*, 35 (1), 65–126.  
<http://dx.doi.org/10.1007/bf00143304>
- Viets, K.O. (1971) Wassermilben aus Südafrika (Hydrachnellae, Acari). *Acarologia*, 12 (4), 752–779.
- Viets, K.O. (1981) Neue Wassermilben (Hydrachnellae, Acari) aus Südafrika. *Acarologia*, 22 (4), 373–384.
- Viets, K.O. & Böttger, K. (1974) Zur Systematik und Ökologie rheophiler Hydrachnellae (Acari) Zentralafrikas. Teil I. *Acarologia*, 16 (1), 106–159.
- Walter, C. (1935) Hydracarina.—Voyage de Ch. Alluaud et P.A. Chappuis en Afrique Occidentale Française (Déc. 1930—Mars 1931). *Archiv für Hydrobiologie*, 28 (1), 69–136 + 9 Taf.
- Walter, C. (1939) Hydracariens récoltés par M. Murat dans la région du Tchad. *Bulletin de la Société d'histoire naturelle d'Afrique du Nord*, 30 (4–5), 246–252.
- Walter, C. & Bader, C. (1952) Hydracarina. In: *Mission scientifique de l'Omo. Mémoires du Muséum National Histoire naturelle, Paris, (n. s.), Series A (Zoologie)*, 4 (3), 87–236.
- Wiles, P.R. (1997) Asian and Oriental Torrenticolidae Piersig, 1902 (Acari: Hydrachnidia: Lebertioidea): a revision of the family and description of new species of *Torrenticola* Piersig and *Pseudotorrenticola* Walter, from Southeast Asia. *Journal of Natural History*, 31 (2), 191–236.  
<http://dx.doi.org/10.1080/00222939700770121>
- Zhang, Z.-Q., Fan, Q.-H., Pešić, V., Smit, H., Bochkov, A.V. Khaustov, A.A., Baker, A. Wohltmann, A., Wen, T., Amrine, J.W., Beron, P., Lin, J., Gabryś, G. & Husband, R. (2011) Order Trombidiformes Reuter, 1909. In: Zhang, Z.-Q. (Ed.), *Animal biodiversity: An outline of higher-level classification and survey of taxonomic richness*. *Zootaxa*, 3148, 129–138.