

## **Checklist of the water mites from Belgium (Acari: Hydrachnidia)**

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### **Abstract**

An updated checklist of the water mites occurring in Belgium is presented here. In total, 177 species have been reported from Belgium, 36 of these are mentioned here for the first time for the Belgian fauna. However, 266 species have already been found in the Netherlands, indicating that a lot more species can be expected.

**Keywords:** Belgian fauna, checklist, Hydrachnidia, new records.

### **Samenvatting**

Een geactualiseerde soortenlijst van de watermijten die voorkomen in België wordt hier gepresenteerd. In totaal worden 177 soorten gemeld uit België, waarvan 36 nieuw zijn voor de Belgische fauna. In Nederland werden echter al 266 soorten waargenomen, wat aangeeft dat nog veel meer soorten kunnen worden verwacht.

### **Résumé**

La liste des acariens aquatiques présents en Belgique a été mise à jour. Elle comprend au total 177 espèces et, parmi celles-ci, 36 sont mentionnées pour la première fois de Belgique. Cependant, ce nombre est probablement sous-évalué étant données les 266 espèces référencées des Pays-Bas.

### **Introduction**

Water mites are small (0,5 - 1,5 mm, with exceptions up to 8 mm) predators of insects and microcrustaceans. They have a complex life cycle, with three inactive stages and three active stages. From the egg, a six-legged larva emerges, which starts to look for a host. Hosts are in most cases adult insects. The engorged larva detaches from its host and enters a resting stage. From this resting stage, a deutonymph emerges, which is in most aspects similar to an adult. Finally, after another resting stage, the adult emerges.

Water mites are collected with a dip net (mesh size 250 µm). In the field (or laboratory) the material can be sorted in a white tray, the water mites can be collected with a pipette. Water mites should not be fixed in ethanol or formaline, but in so-called Koenike-fluid (3 parts glacial acetic acid, 5 parts glycerine and 3 parts water).

Research on water mites from Belgium can be divided roughly in three periods. The first period started with a series of publications by Ernest ROUSSEAU (1872-1920) and a publication of LAMEERE (1895) at the end of the 19<sup>th</sup> and the beginning of the 20<sup>th</sup> century. LAMEERE (1895) published the first review on Belgian water mites, with 21 species listed. ROUSSEAU (1906) published the first checklist of Belgium with 39 species (both lists adapted to present-day systematics). The Swiss acarologist Charles Walter revised the list of Rousseau (WALTER, 1909). The second period started with a series

of publications in the 40ies of the 20<sup>th</sup> century by Jean Cooreman (1911-1983). COOREMAN (1940) published a checklist for Belgium with 77 species. In the third period, water mites were reported in ecological studies from streams in the Ardennes in the seventies and eighties of the 20<sup>th</sup> century. Apart from these periods, there have been a few other publications, but with only a few records of water mites from Belgium.

Despite the long period of studies on Belgian water mites, the water mite fauna is poorly known. The checklist of this study tallies 177 species, a relatively low number compared to the Netherlands, where 266 species are known (SMIT *et al.*, 2015). 36 species are reported here new for the Belgian fauna. From a much larger country like France, 420 species are known (SMIT & GERECKE, 2010).

### Systematic part

Listing of the families follows K.O. VIETS (1987). Recent taxonomic changes published by DI SABATINO *et al.* (2010), DAVIDS *et al.* (2007), GERECKE (2003) and SMITH *et al.* (2015) are followed. For species new for the fauna of Belgium new records are given. However, collectors of the material are not known for a large part of these records. Numbers are given as males/females/(deuto)nymphs or adult/(deuto)nymphs.

Species preceded by an asterisk (\*) are checked by us, either from the collection of Cooreman, which is deposited in the Royal Belgian Institute of Natural Sciences (species present there are marked with RBINS) or from more recent records. A smaller number of species were identified recently by D. Tempelman & T. van Haaren (Grontmij, Amsterdam) and by B. van Maanen & M. Korsten (Waterschap Roer en Overmaas, Sittard). Unfortunately, no material has been conserved of 39 reported species, which could therefore not yet be confirmed during the present study.

#### Family Hydrachnidae Leach, 1815

Excluded: *Hydrachna piersigi* Koenike, 1897 (sp. inc. – DAVIDS *et al.*, 2007).

\**Hydrachna conjecta* Koenike, 1895

New for Belgium.

New record. 2/0, Welleken, Zonhoven, 4.VI.1998.

\**Hydrachna cruenta* Müller, 1776

COOREMAN (1940: 3, 1945: 3). RBINS.

*Hydrachna distincta* Koenike, 1897

COOREMAN (1940: 3).

*Hydrachna geographica* Müller, 1776

LAMEERE (1895: 504); SCHOUTEDEN (1908: 148); COOREMAN (1940: 3).

\**Hydrachna globosa* (De Geer, 1778)

LAMEERE (1895: 504); ROUSSEAU (1906: 182); WALTER (1909: 48); COOREMAN (1940: 2, 1945: 3). Syn.: *Hydrachna geographica* [err., non Müller, 1776 – WALTER (1909)]. ROUSSEAU (1903: 321, 1906: 182). *Hydrachna paludosa* Thon, 1899. ROUSSEAU (1909: 450); WALTER (1909: 47). *Hydrachna scutata* Halbert, 1911. ROUSSEAU (1906: 182); WALTER (1909: 48). *Hydrachna uniscutata paludosa* Thon, 1899. COOREMAN (1940: 3). *Hydrachna uniscutata separata* Viets, 1919. COOREMAN (1940: 3). RBINS.

\**Hydrachna incisa* Halbert, 1903

Syn.: *Hydrachna levis* Williamson, 1925. COOREMAN (1940: 4).

*Hydrachna leegei* Koenike, 1895

Syn.: *Hydrachna maculifera* Piersig, 1897. COOREMAN (1940: 3).

*Hydrachna processifera* Koenike, 1903

COOREMAN (1940: 4).

\**Hydrachna skorikowi* Piersig, 1900

New for Belgium.

New record. 1/0, Poudrière Marez, Oostende, 13.VIII.1948, leg. E. Leloup (RBINS).

#### Family Limnocharidae Grube, 1859

\**Limnochares aquatica* (Linnaeus, 1758)

ROUSSEAU (1906: 182); WALTER (1909: 48); COOREMAN (1940: 2, 1945: 3). Syn.: *Limnochares holosericea* (De Geer, 1778). LAMEERE (1895: 499); ROUSSEAU (1903: 287). RBINS.

#### Family Eylaidae Leach, 1815

Excluded: *Eylais saratovi* Piersig, 1904 (sp. inc. – DAVIDS *et al.*, 2007).

\**Eylais bisinuosa* Piersig, 1899

*Eylais setosa tantilla* Koenike, 1897 (err.). COOREMAN (1940: 2).

New for Belgium.

New record. 2/0, Overmeire, 10.IV.1920; 20.IV.1920 (RBINS).

\**Eylais extendens* (Müller, 1776)

LAMEERE (1895: 499); ROUSSEAU (1903: 305, 321, 1906: 182); WALTER (1909: 48); COOREMAN (1940: 2). Syn.: *Eylais soari* Piersig, 1899. ROUSSEAU (1909: 450); WALTER (1909: 48). *Eylais rimosa* Piersig, 1899. COOREMAN (1940: 2). *Eylais undulosa* Koenike, 1897. COOREMAN (1940: 2, 1945: 3). *Eylais undulosa soari* Piersig, 1899. COOREMAN (1940: 2). RBINS.

*Eylais hamata* Koenike, 1897

COOREMAN (1940: 2).

\**Eylais infundibulifera* Koenike, 1897

Syn.: *Eylais infundibulifera discreta* Koenike, 1897. COOREMAN (1940: 2). RBINS.

*Eylais setosa* Koenike, 1897

ROUSSEAU (1909: 450); WALTER (1909: 48); COOREMAN (1940: 2).

#### Family Hydrodromidae Viets, 1936

\**Hydrodroma despiciens* (Müller, 1776)

COOREMAN (1942b: 4, 1945: 4). Syn.: *Diplodontus despiciens* (Müller, 1776). LAMEERE (1895: 504); ROUSSEAU (1903: 305, 321, 1906: 182); WALTER (1909: 48); COOREMAN (1940: 5); DEWEZ (1985: 6).

New records. 1/0, Overmeire, 17.V.1909 (RBINS); 1/0, Etang Charles Quint, Groenendaal, 15.V.1942, leg. E. Leloup (RBINS); 1/0/0, étang de pêche, Groenendaal, 29.VII.1942, leg. E. Leloup (RBINS); 0/1/1, Rouge Cloître, Groenendaal, 29.VII.1942, leg. E. Leloup (RBINS); 1/0, Rouge Cloître, Groenendaal, 12.VIII.1942, leg. E. Leloup (RBINS); Bosven, Beringen, 51° 05'16" N 5° 19'58" E, 29.V.2002, leg. L. Denys; 6/2, moorland pool NE of Wortel-Kolonie, 51° 24.835 N 4° 50.229 E, 14.VI.2015, leg. H. Smit.

Remark: No separation has been made in the past between *H. despiciens* and *H. pilosa* Besseling, 1940. The records given here are therefore the first confirmed records of the species for Belgium.

\**Hydrodroma pilosa* Besseling, 1940

New for Belgium.

New records. 0/1/0, Durme, Waasmunster, 12.VIII.1974; leg. G. Marlier (RBINS); 2/0, De Grote Put, Muisbroek, Antwerpen, 19.V.1998; 2/0, E-10 pond Minderhout, Hoogstraten, 17.VI.1998; 1/0, Molsbroek, Lokeren, 5.V.1999; 1/0, sandpit, Weerde, 50° 58'46" N 4° 28'55" E, 8.V.2001; 4/0, fishpond, Oud-Heverlee Noord, Oud-Heverlee, 50° 50'46" N 4° 39'43" E, 5.VI.2001.

### **Family Sperchontidae Thor, 1900**

Excluded: *Sperchon denticulatus* Koenike, 1895 (all material that was checked turned out to be females, which cannot be identified to species level – DI SABATINO *et al.*, 2010).

\**Sperchon brevis* Koenike, 1895

New for Belgium.

New records. 1/0, La Lembrée, Vieuxville, 7.III.1950, leg. Delatte (RBINS); 0/2/0, La Lesse, Ochamps, 11.VII.1971, leg. G. Marlier (RBINS).

\**Sperchon clupei* Piersig, 1896

COOREMAN (1942a: 126, 1942b: 2, 1945: 4); MARLIER (1951: 8); DEWEZ & WAUTHY (1981: 500); DEWEZ & WAUTHY (1984: 464); DEWEZ (1985: 6); MARTIN *et al.* (2009: 820). RBINS.

\**Sperchon compactilis* Koenike, 1911

COOREMAN (1942a: 126, 1942b: 2). Syn.: *Sperchon papillosus compactilis* Koenike, 1911. DEWEZ (1985: 6); MARTIN *et al.* (2009: 820). RBINS.

\**Sperchon glandulosus* Koenike, 1886

New for Belgium.

New record. 1/0, La Lesse, Ochamps, 11.VII.1971, leg. G. Marlier (RBINS).

Remark: All material previously reported as being *S. glandulosus* (COOREMAN, 1945; MARLIER, 1951) turned out to be *S. thienemanni* Koenike, 1907.

*Sperchon hibernicus* Halbert, 1944

MARTIN *et al.* (2009: 820).

\**Sperchon hispidus* Koenike, 1895

MARTIN *et al.* (2009: 820).

*Sperchon longirostris* Koenike, 1895

COOREMAN (1945: 5).

*Sperchon longissimus* Viets, 1920

MARTIN *et al.* (2009: 820).

\**Sperchon setiger* Thor, 1898

COOREMAN (1945: 4); MARLIER (1951: 8); BOLLE *et al.* (1977: 205); DEWEZ & WAUTHY (1981: 500). RBINS.

\**Sperchon squamosus* Kramer, 1879

COOREMAN (1945: 5); MARLIER (1951: 8); BOLLE *et al.* (1977: 205); DEWEZ & WAUTHY (1981: 500); DEWEZ & WAUTHY (1984: 464). RBINS.

\**Sperchon thienemanni* Koenike, 1907

COOREMAN (1945: 5). RBINS.

*Sperchon turgidus* Viets, 1914

MARTIN *et al.* (2009: 820).

\**Sperchon vaginosus* Thor, 1902

COOREMAN (1945: 5); MARLIER (1951: 8). RBINS.

*Sperchon violaceus* Walter, 1944

BOLLE *et al.* (1977: 205).

\**Sperchonopsis verrucosa* (Protz, 1896)

COOREMAN (1954: 866); DEWEZ & WAUTHY (1984: 464). RBINS.

### **Family Teutoniidae Koenike, 1910**

\**Teutonia cometes* (Koch, 1837)

COOREMAN (1940: 5).

### **Family Anisitsiellidae Koenike, 1910**

\**Bandakia concreta* Thor, 1913  
COOREMAN (1954: 865). RBINS.

### **Family Lebertiidae Thor, 1900**

\**Lebertia fimbriata* Thor, 1899  
MARTIN *et al.* (2009: 819). RBINS.

\**Lebertia glabra* Thor, 1897  
COOREMAN (1942b: 4, 1945: 6). RBINS.

\**Lebertia inaequalis* (Koch, 1837)  
Syn.: *Lebertia exuta* Koenike, 1908. COOREMAN (1945: 6); DEWEZ (1985: 6). RBINS.

\**Lebertia insignis* Neuman, 1880  
DEWEZ & WAUTHY (1981: 500).

*Lebertia maglioi* Thor, 1907  
DEWEZ & WAUTHY (1981: 500).

\**Lebertia porosa* Thor, 1900  
COOREMAN (1940: 5); MARTIN *et al.* (2009: 819). RBINS.

\**Lebertia rivulorum* Viets, 1933  
COOREMAN (1945: 6). RBINS.

\**Lebertia salebroso* Koenike, 1908  
New for Belgium.  
New record. 1/0/0, Laclaireau, 8.XI.2000.

\**Lebertia sparsicapillata* Thor, 1905  
New for Belgium.  
New record. 2/3/0, Kalvenderbach, leg. L. Leclercq, 26.X.2000.

\**Lebertia stigmatifera* Thor, 1900  
COOREMAN (1942b: 4, 1945: 6; 1954: 866). Syn.: *Lebertia duricoria* Koenike, 1911. COOREMAN (1945: 6). RBINS.

### **Family Hydryphantidae Piersig, 1896**

Excluded: *Thyas venusta* Koch, 1836 (sp. inc. – K.O. VIETS, 1987)

\**Euthyas truncata* (Neuman, 1875)  
COOREMAN (1940: 4, 1942b: 3, 1949: 269); DEWEZ (1985: 6). Syn.: *Bradybates truncatus* Neuman, 1875. LAMEERE (1895: 504). *Thyas longirostris* Piersig, 1895. ROUSSEAU (1909: 450); WALTER (1909: 48). RBINS.

\**Hydryphantes crassipalpis* Koenike, 1914  
*Hydryphantes dispar* (err., non Von Schaub, 1888). COOREMAN (1945: 4).  
New for Belgium.  
New records. 2/0, Chertal, 26.III.1940, leg. E. Leloup (RBINS); 1/0, Rijmenam, VI.1948, leg. A. Collart (RBINS).

*Hydryphantes dispar* (Von Schaub, 1888)  
ROUSSEAU (1906: 182); WALTER (1909: 49); COOREMAN (1940: 5).

\**Hydryphantes octoporus* Koenike, 1896  
New for Belgium.  
New records. Poudrière Marez, Oostende, 26.X.1948, leg. E. Leloup (RBINS); 1/0, Huldenberg, 4.V.1999.

*Hydryphantes placationis* Thon, 1899  
COOREMAN (1940: 5).

\**Hydryphantes ruber* (De Geer, 1778)  
ROUSSEAU (1903: 321, 1906: 182); WALTER (1909: 49); COOREMAN (1940: 4, 1942b: 3). Syn.:  
*Hydrodroma rubra* (De Geer, 1778). LAMEERE (1895: 504). *Hydryphantes ruber prolongata* Thon,  
1899. COOREMAN (1940: 5, 1945: 4). RBINS.

\**Panisellus thienemanni* (Viets, 1920)  
COOREMAN (1954: 865). RBINS.

\**Paninus torrenticolus* Piersig, 1898  
BOLLE *et al.* (1977: 205); DEWEZ & WAUTHY (1981: 503); DEWEZ & WAUTHY (1984: 464). RBINS.

\**Parathyas barbigera* (Viets, 1908)  
Syn.: *Thyas barbigera* Viets, 1908. COOREMAN (1942b: 3). RBINS.

\**Parathyas colligera* (Viets, 1923)  
Syn.: *Thyas rivalis colligera* Viets, 1923. COOREMAN (1942b: 3, 1945: 4; 1954: 865). RBINS.

\**Protzia eximia* (Protz, 1896)  
COOREMAN (1940: 2, 1942b: 2); BOLLE *et al.* (1977: 205); DEWEZ & WAUTHY (1981: 503); MARTIN  
*et al.* (2009: 819). RBINS.

\**Protzia invalvaris* Piersig, 1898  
COOREMAN (1942a: 126, 1942b: 2); DEWEZ & WAUTHY (1984: 464); MARTIN *et al.* (2009: 819).  
RBINS.

*Thyopsis cancellata* (Protz, 1896)  
DEWEZ (1985: 6).

#### **Family Oxidae Viets, 1926**

*Oxus musculus* (Müller, 1776)  
Syn.: *Marica musculus* (Müller, 1776). LAMEERE (1895: 503). *Frontipoda musculus* (Müller, 1776).  
ROUSSEAU (1906: 185); WALTER (1909: 51); COOREMAN (1940: 5).

#### **Family Torrenticolidae Piersig, 1902**

\**Pseudotorrenticola rhynchota* Walter, 1906  
COOREMAN (1942a: 127, 1942b: 5). RBINS.

\**Monatractides stadleri* (Walter, 1924)  
DEWEZ & WAUTHY (1984: 464).

\**Torrenticola amplexa* (Koenike, 1908)  
MARTIN *et al.* (2009: 820).

\**Torrenticola anomala* (Koch, 1837)  
New for Belgium.  
New records. 0/1/0, L'Ourthe near Maboge, 50° 10.008 N 5° 37.038 E, alt. 228 m asl, 28.VIII.2003,  
leg. H. Smit; 1/0/0, L'Ourthe Orientale upstream of Houffalize, 50° 08.851 N 5° 51.384 E, alt. 355 m  
asl, 30.VIII.2003, leg. H. Smit.

*Torrenticola brevirostris* (Halbert, 1911)  
MARTIN *et al.* (2009: 820).

*Torrenticola elliptica* Maglio, 1909  
MARTIN *et al.* (2009: 820).

## Family Limnesiidae Thor, 1900

\**Limnesia connata* Koenike, 1895

New for Belgium.

New records. 0/1/0, Durme, Waasmunster, 12.VIII.1974, leg. G. Marlier (RBINS); 1/0, Mechels Broek, Mechelen, 9.VI.1998 (RBINS); 1/0, Molsbroek, Lokeren, 9.VII.1999 (RBINS).

\**Limnesia curvipalpis* Tuzovskij, 1997

VERCAUTEREN & VAN HAAREN (2011: 10).

\**Limnesia fulgida* Koch, 1836

COOREMAN (1940: 5; 1945: 7). Syn.: *Limnesia histrionica* Bruzelius, 1854. LAMEERE (1895: 504); ROUSSEAU (1903: 305, 321, 1906: 185); WALTER (1909: 51); COOREMAN (1940: 6). RBINS.

\**Limnesia koenikei* Piersig, 1894

ROUSSEAU (1903: 349, 1906: 185); WALTER (1909: 51); COOREMAN (1940: 6, 1942b: 5, 1945: 7); VERCAUTEREN & VAN HAAREN (2011: 10). RBINS.

\**Limnesia maculata* (Müller, 1776)

LAMEERE (1895: 504); ROUSSEAU (1903: 321, 1906: 186); WALTER (1909: 51); COOREMAN (1940: 5, 1942b: 5, 1945: 7); VERCAUTEREN & VAN HAAREN (2011: 10). RBINS.

\**Limnesia undulata* (Müller, 1776)

ROUSSEAU (1909: 450); COOREMAN (1940: 6, 1942b: 5, 1945: 7). Syn. *Limnesia undulosa* (Müller, 1776)(laps.). WALTER (1909: 51). RBINS.

New records. 3/0, Rouge-Cloître, 23.IV.1942, leg. E. Leloup (RBINS); 0/1/0, Etang des Enfants Noyés, 7.V.1942 (RBINS); 0/1/0, Groenendaal, 27.VII.1942, leg. E. Leloup (RBINS); 1/0, Zoerselbos, Zoersel, 24.VI.1998; 0/2/0, sandpit, Weerde, 50° 58'46" N 4° 28'55" E, 8.V.2001.

Remark: In the past no separation has been made between *L. undulata* and *L. undulatoides*. These are the first confirmed records of the species for Belgium.

\**Limnesia undulatoides* Davids, 1997

New for Belgium.

New records. 0/1/0, Pré Wigi, Herstal, 23.IV.1940 (RBINS); Etang de la Patte d'Oie, 19.VI.1975, leg. G. Marlier (RBINS); 13/0, Asbroekvijver, Lanaken, 8.VI.1998; 1/0, Den Diel, Mol, 22.VI.1998; 2/0, Kasteel Terlamen, Zolder, 28.VII.1998; 1/1/0, fishpond, Oud-Heverlee Noord, Oud-Heverlee, 50° 50'46" N 4° 39'43" E, 5.VI.2001; 30/0, E-10 plas, Reebergen, Malle, 24.VI.1998; 2/0, Verdrongen Weide, Ieper, 26.V.1999; 0/1/0, fishpond, Abdij van 't Park, Leuven, 50° 51'49" N 4° 43'03" E, 11.VI.2001; 3/0, Uffelschebeek, 51° 10.191 N, 5° 46.198 E, 30.V.2012.

Remark: See previous species.

## Family Hygrobatidae Koch, 1842

\**Atractides distans* (Viets, 1914)

New for Belgium.

New record. 0/1/0, Uffelschebeek, 51° 10.191 N, 5° 46.198 E, 20.IV.2009.

\**Atractides fonticolus* (Viets, 1920)

Syn.: *Megapus nodipalpis fonticola* Viets, 1920. MARLIER (1951: 8). *Atractides nodipalpis fonticolus* Viets, 1920. COOREMAN (1945: 9). RBINS.

\**Atractides gibberipalpis* Piersig, 1898

New for Belgium.

New record. 6/0/0, Eau Martin de Moulin, tributary of the river Ourthe Orientale, 50° 08.050 N 5° 43.414 E, alt. 290 m asl, 30.VIII.2003, leg. H. Smit.

\**Atractides nodipalpis* Thor, 1899

COOREMAN (1945: 9); BOLLE *et al.* (1977: 205); DEWEZ & WAUTHY (1981: 503); DEWEZ & WAUTHY (1984: 464); MARTIN *et al.* (2009: 819). RBINS.

*Atractides octoporus* Piersig, 1904  
BOLLE *et al.* (1977: 205); DEWEZ & WAUTHY (1984: 464).

\**Atractides pennatus* (Viets, 1920)  
Syn.: *Megapus nodipalpis pennata* Viets, 1920. MARLIER (1951: 8). *Atractides nodipalpis pennatus* Viets, 1920. COOREMAN (1945: 9). RBINS.

\**Atractides spinipes* Koch, 1837  
COOREMAN (1942b: 6, 1945: 8; 1954: 867). Syn.: *Megapus spinipes* (Koch, 1837). COOREMAN (1942a: 126); MARLIER (1951: 8). RBINS.

\**Atractides tener* (Thor, 1899)  
New for Belgium.  
New records. 2/3/0, Ry Colas, Amonines, 26.X.1956, leg. J. Cooreman (RBINS); 1/1/30, Ry Colas, Amonines, 19.XI.1956, leg. J. Cooreman (RBINS); 1/2/0, Ziepbeek upper course, Molenberg, 50° 56.043 N, 5° 37.707 E, 26.III.2007; 0/1/0, Ziepbeek before Daalbroekstraat, 50° 55.463 N, 5° 39.244 E, 22.V.2002; 1/9/0, same location, 26.III.2007.

\**Hygrobates calliger* Piersig, 1896  
COOREMAN (1942a: 126, 1942b: 5; 1954: 867); DEWEZ & WAUTHY (1984: 464); MARTIN *et al.* (2009: 819). RBINS.

\**Hygrobates fluviatilis* (Ström, 1768)  
COOREMAN (1945: 7); BOLLE *et al.* (1977: 205); DEWEZ & WAUTHY (1981: 500); DEWEZ (1985: 6). Syn.: *Hygrobates reticulatus* Koenike, 1892. ROUSSEAU (1909: 450); WALTER (1909: 51). RBINS.

\**Hygrobates longipalpis* (Hermann, 1804)  
LAMEERE (1895: 502); ROUSSEAU (1903: 287, 321, 1906: 186); WALTER (1909: 51); COOREMAN (1940: 6, 1945: 7). Syn.: *Hygrobates prosiliens* Koenike, 1915. COOREMAN (1945: 8). RBINS.

\**Hygrobates nigromaculatus* Lebert, 1879  
COOREMAN (1942b: 6, 1945: 7); DEWEZ & WAUTHY (1981: 500); DEWEZ (1985) [Note: probably most are *H. setosus* Besseling, 1942]. *Hygrobates trigonicus* (err., non Koenike, 1895): COOREMAN (1940: 6). RBINS.

\**Hygrobates norvegicus* (Thor, 1897)  
COOREMAN (1945: 8; 1954: 867). RBINS.

\**Hygrobates setosus* Besseling, 1942  
Syn.: *Hygrobates nigromaculatus ramosus* Piersig, 1898. COOREMAN (1945: 8).

\**Hygrobates trigonicus* Koenike, 1895  
New for Belgium.  
New record. 3/3/0, fishpond, Weerde, 50° 58'46"N 4° 28'55" E, 8.V.2001.  
Remark: The material reported as *H. trigonicus* by COOREMAN (1940: 6) turned out to be *H. nigromaculatus*.

#### **Family Unionicolidae Oudemans, 1909**

\**Neumania deltoides* (Piersig, 1894)  
COOREMAN (1940: 7). Syn.: *Neumania triangularis* (Piersig, 1893). ROUSSEAU (1903: 321, 1906: 187); WALTER (1909: 52).

\**Neumania imitata* Koneike, 1908  
New for Belgium.  
New records. 0/1/0, Aalbeek, Schoordijkhoeve, 51° 10.887 N, E 5° 38.275 E, 16.VI.2003.

\**Neumania limosa* (Koch, 1836)  
COOREMAN (1942b: 7); VERCAUTEREN & VAN HAAREN (2011: 10). RBINS.



*Neumania spinipes* (Müller, 1776)

ROUSSEAU (1903: 321, 1906: 187); WALTER (1909: 52); COOREMAN (1940: 7); DEWEZ (1985: 6).

\**Neumania vernalis* (Müller, 1776)

ROUSSEAU (1903: 321, 1906: 187); WALTER (1909: 52); COOREMAN (1940: 7, 1942b: 6, 1945: 10). RBINS.

\**Unionicola aculeata* (Koenike, 1890)

New for Belgium.

New records. 3/0, Zoerselbos, Zoersel, 24.VI.1998 ; 1/0, Molsbroek, 3/0, Damvallei, Meerskant, Laarne, 11.V.1999; 9.VII.1999 ; 1/0, Scheldearm (Heurnedal), Oudenaarde, 25.V.1999.

Remark: The material identified as *U. aculeata* by COOREMAN (1940: 7) turned out to be *U. crassipes*.

*Unionicola bonzi* (Claparède, 1869)

COOREMAN (1940: 6). Syn.: *Atax bonzi* Claparède, 1869. LAMEERE (1895: 501); ROUSSEAU (1906: 187); WALTER (1909: 52).

\**Unionicola crassipes* (Müller, 1776)

COOREMAN (1940: 6, 1945): 10. Syn.: *Atax crassipes* (Müller, 1776). LAMEERE (1895: 501); ROUSSEAU (1903: 287, 1906: 187); WALTER (1909: 52). RBINS.

\**Unionicola figuralis* (Koch, 1836)

COOREMAN (1945: 9). RBINS.

*Unionicola intermedia* (Koenike, 1882)

COOREMAN (1940: 6). Syn.: *Atax intermedius* Koenike, 1882. ROUSSEAU (1906: 187); WALTER (1909: 51).

\**Unionicola ypsilophora* (Bonz, 1783)

COOREMAN (1940: 6, 1942b: 6). Syn.: *Atax ypsiloporus* (Bonz, 1783). LAMEERE (1895: 501); ROUSSEAU (1906: 187); WALTER (1909: 52). RBINS.

#### **Family Feltriidae Viets, 1926**

*Feltria brevipes* Walter, 1907

BOLLE *et al.* (1977: 205); DEWEZ & WAUTHY (1984: 464).

\**Feltria rouxi* Walter, 1907

BOLLE *et al.* (1977: 205); DEWEZ & WAUTHY (1981: 500); MARTIN *et al.* (2009: 819).

*Feltria subterranea* Viets, 1937

VIETS (1937: 5); LERUTH (1939: 413); COOREMAN (1940: 7).

#### **Family Wettinidae Cook, 1956**

\**Wettina podagrica* (Koch, 1837)

COOREMAN (1945: 7); DEWEZ & WAUTHY (1981: 500). RBINS.

#### **Family Pionidae Thor, 1900**

Excluded: *Piona fuscata* (Hermann, 1804) (= ? *Piona variabilis* (Koch, 1836)).

\**Forelia liliacea* (Müller, 1776)

COOREMAN (1940: 8). Syn.: *Typhis liliaceus* (Müller, 1776). ROUSSEAU (1909: 450); WALTER (1909: 52).

\**Forelia longipalpis* Maglio, 1924

New for Belgium.

New records. 1/0/0, Bois des Capucines, Etang du Mérisier, 27.X.1941, leg. E. Leloup (RBINS); 0/6/0, sandpit, Weerde, 50° 58'46" N 4° 28'55" E, 8.V.2001.

\**Forelia variegator* (Koch, 1837)

DEWEZ (1985: 6). RBINS.

\**Hydrochoreutes krameri* Piersig, 1896

ROUSSEAU (1909: 450); WALTER (1909: 51); COOREMAN (1940: 7). RBINS.

\**Hydrochoreutes ungulatus* (Koch, 1836)

New for Belgium.

New records. 0/1/0, Etang de la Patte d'Oie, Groenendaal, 19.VI.1975, leg. Marlier (RBINS); 0/1/0, Etang de la Patte d'Oie, Groenendaal, 19.VI.1975, leg. G. Marlier (RBINS).

\**Piona alpicola* (Neuman, 1880)

Syn.: *Piona uncata* (Koenike, 1888). COOREMAN (1940: 8, 1945: 11). *Piona uncata controversiosa* (Piersig, 1896). COOREMAN (1940: 8). RBINS.

\**Piona carnea* (Koch, 1836)

COOREMAN (1942b: 7). RBINS.

\**Piona clavicornis* (Müller, 1776)

New for Belgium.

New records. 1/0, Den Diel, Mol, 22.VI.1998; 1/0, Rietfonteintje, Brugge (Zeebrugge), 10.V.1999; 1/0, Bosfonteintje, Brugge (Zeebrugge), 18.V.1999.

\**Piona coccinea* (Koch, 1836)

COOREMAN (1940: 8, 1942b: 7). Syn: *Nesaea coccinea* Koch, 1836. LAMEERE (1895: 502). RBINS.

\**Piona conglobata* (Koch, 1836)

ROUSSEAU (1906: 187); WALTER (1909: 52); COOREMAN (1940: 8, 1945: 10). Syn.: *Piona communis* (Kramer, 1875). LAMEERE (1895: 502). *Piona conglobata conjugula* Koenike, 1909. COOREMAN (1945: 10). RBINS.

\**Piona discrepans* (Koenike, 1895)

COOREMAN (1945: 11). RBINS.

\**Piona imminuta* (Piersig, 1897)

New for Belgium.

New records. 3/0, Hobokense Polder, Antwerpen, 18.V.1998; 1/0, Grote Vijver, Wijvenheide, Zonhoven, 2.VI.1998; 1/0, oude Maasmeander, Maasveld, Dilsen, 3.VI.1998; 4/0, Koeweide, Dilsen, 3.VI.1998; 1/0, Mechels Broek, Mechelen, 9.VI.1998; 1/0, Blaasveldbroek, Lacourtvijver, Willebroek, 9.VI.1998; 4/0, Schulensmeer, Linkhout/Herk-de-stad, 11.VI.1998; 22/0, Beemden, Landen, 11.VI.1998; 1/0, E-10 plas, Reebergen, Malle, 24.VI.1998; 10/0, Kasteel Terlamen, Zolder, 28.VII.1998; 2/0, Terlamen, Wielewaal, Zolder, 28.VII.1998; 10/0, sandpit, Veeweide, Overijse, 4.V.1999; 2/0, Beersel, 4.V.1999; 5/0, Gelaagputten, Stekene, 6.V.1999; 5/0, Eendefonteintje, Zeebrugge, 10.V.1999; 14/0, Damvallei, Meerskant, Laarne, 11.V.1999; 38/0, Dikkebusvijver, Diksmuide, 26.V.1999; 1/0, Verdronken Weide, Ieper, 26.V.1999; 1/0, Berlare Broek, Berlare, 20.V.1999; 30/0, Molsbroek, Lokeren, 9.VII.1999; 17/10/0, fishpond, Breeven, Bornem, 51° 05'26" N 4° 14'21" E, 18.VI.2001; 1/0/0, fishpond, Linkebeek, 50° 46'00" N 4° 20'06" E, 19.VI.2002; 1/1/0, fishpond, Linkebeek, 50° 46'09" N 4° 19'44" E, 17.VI.2002.

\**Piona laminata* (Thor, 1900)

New for Belgium.

New record. 1/0, E-10 plas Reebergen, Malle, 24.VI.1998; 2/0, Rietfonteintje, Brugge (Zeebrugge), 10.V.1999.

*Piona longipalpis* (Krendowsky, 1878)

ROUSSEAU (1903: 321, 1906: 187); WALTER (1909: 52); COOREMAN (1940: 8). Syn.: *Curvipes longipalpis* (Krendowsky, 1878). ROUSSEAU (1903: 305).

\**Piona neumani* (Koenike, 1883)

Syn.: *Piona circularis* (Piersig, 1896). COOREMAN (1942b: 8, 1945: 11). RBINS.

\**Piona nodata* (Müller, 1776)

ROUSSEAU (1906: 187); WALTER (1909: 52); COOREMAN (1940: 8). Syn.: *Curvipes nodatus* (Müller, 1776). ROUSSEAU (1903: 287). RBINS.

*Piona obturbans* (Piersig, 1896)

COOREMAN (1945: 11).

\**Piona pusilla* (Neuman, 1875)

VERCAUTEREN & VAN HAAREN (2011: 10). Syn.: *Piona rotunda* (Kramer, 1879). ROUSSEAU (1906: 187); WALTER (1909: 52); COOREMAN (1940: 8, 1942b: 7, 1945: 10). RBINS.

\**Piona rotundoides* (Thor, 1897)

COOREMAN (1945: 10). RBINS.

\**Piona stjordalensis* (Thor, 1897)

Syn.: *Piona coccinea stjordalensis* (Thor, 1897). COOREMAN (1945: 10). RBINS.

\**Piona variabilis* (Koch, 1836)

COOREMAN (1945: 12). Syn.: *Nesaea variabilis* Koch, 1836. LAMEERE (1895: 502). *Piona rufa* (Koch, 1836). ROUSSEAU (1909: 450); WALTER (1909: 52). RBINS.

*Pionacercus leuckarti* Piersig, 1894

COOREMAN 1940: 7.

\**Pionopsis lutescens* (Hermann, 1804)

ROUSSEAU (1906: 186); WALTER (1909: 51); COOREMAN (1940: 7, 1942b: 7, 1945: 10). Syn.: *Piona lutescens* (Hermann, 1804). RBINS.

\**Tiphys latipes* (Müller, 1776)

New for Belgium.

New records. 3/0, Rietfonteintje, Brugge, 10.V.1999; 2/0, Bosfonteintje, Brugge, 18.V.1999.

\**Tiphys ornatus* Koch, 1836

Syn.: *Piona ornata* (Koch, 1836). LAMEERE (1895: 502). *Laminipes ornatus* (Koch, 1836). ROUSSEAU (1906: 186); WALTER (1909: 51). *Acercus ornatus* (Koch, 1836). COOREMAN (1940: 7, 1945: 10); Syn.: *Acercus torris* (err., non Müller, 1776). COOREMAN (1940: 7). RBINS.

*Tiphys torris* (Müller, 1776)

DEWEZ & WAUTHY (1981: 500).

### **Family Aturidae Thor, 1900**

\**Aturus crinitus* Thor, 1902

BOLLE *et al.* (1977: 205); DEWEZ & WAUTHY (1984: 464); MARTIN *et al.* (2009: 819). RBINS.

\**Aturus protzi* Piersig, 1901

COOREMAN (1942a: 127, 1942b: 8). RBINS.

\**Aturus rotundus* Romijn, 1921

BOLLE *et al.* (1977: 205); DEWEZ & WAUTHY (1981: 500); DEWEZ (1985: 6). RBINS.

\**Aturus scaber* Kramer, 1875

DEWEZ & WAUTHY (1984: 464); MARTIN *et al.* (2009: 819). RBINS.

\**Barbaxonella angulata* (Viets, 1955)

New for Belgium.

New record. 0/1/0, L'Ourthe near Maboge, 50° 10.008 N 5° 37.038 E, alt. 228 m asl, 28.VIII.2003, leg. H. Smit.

\**Brachypoda versicolor* (Müller, 1776)

ROUSSEAU (1903: 287, 1906: 185); WALTER (1909: 51); COOREMAN (1940: 8, 1942b: 8, 1945: 12). *Axona versicolor* (Müller, 1776). LAMEERE (1895: 503). RBINS.

\**Brachypodopsis gracilis* Piersig, 1903

New for Belgium.

New record. 0/1/0, L'Ourthe near Maboge, 50° 10.008 N 5° 37.038 E, alt. 228 m a.s.l., 28.VIII.2003, leg. H. Smit.

*Kongsbergia largaiollii* (Maglio, 1909)

BOLLE *et al.* (1977: 205).

\**Kongsbergia materna* Thor, 1899

New for Belgium.

New record. 1/0/1, La Lembrée, Vieuxville, 13.III.1951, leg. Delatte (RBINS).

\**Ljanina bipapillata* Thor, 1898

DEWEZ & WAUTHY (1984: 464).

### **Family Momoniidae Viets, 1926**

*Stygomomonium latipes* Szalay, 1943

MARTIN *et al.* (2009: 820).

### **Family Mideopsidae Koenike, 1910**

\**Mideopsis crassipes* Soar, 1904

New for Belgium.

New record. 1/1/0, Markske at crossing with Zondereigen, 51° 24.750 N 4° 54.009 E, 13.VI.2015, leg H. Smit.

\**Mideopsis orbicularis* (Müller, 1776)

COOREMAN (1945: 12); DEWEZ (1985: 6) (note: probably the latter is *Mideopsis roztozensis* Biesiadka & Kowalik, 1979).

New records. 0/1/0, Rouge Cloître, 10.VIII.1942, leg. E. Leloup (RBINS); 17/0, sandpit, Weerde, 50° 58'46" N 4° 28'55" E, 8.V.2001; 9/0, fishpond, Breeven, Bornem, 51° 05'26" N 4° 14'21" E, 18.VI.2001.

Remark: Very likely the record from DEWEZ (1985) is *M. roztozensis* (species from running waters). Here are the first confirmed record of the species.

\**Mideopsis roztozensis* Biesiadka & Kowalik, 1979

New for Belgium.

New record. 5/0, L'Ourthe near Maboge, 50° 10.008 N 5° 37.038 E, alt. 228 m asl, 28.VIII.2003, leg. H. Smit.

Remark: See previous species.

### **Family Neoacaridae (Motas & Tanasachi, 1947)**

*Neoacarus hibernicus* Halbert, 1944

MARTIN *et al.* (2009: 820).

### **Family Arrenuridae Thor, 1900**

Excluded: *Arrenurus emarginator* (Müller, 1776) – *species incerta* (K. Viets, 1956).

*Arrenurus affinis* Koenike, 1887

ROUSSEAU (1909: 450); WALTER (1909: 49); COOREMAN (1940: 9).

\**Arrenurus albator* (Müller, 1776)

ROUSSEAU (1903: 287, 1906: 184); WALTER (1909: 50); COOREMAN (1940: 9); VERCAUTEREN & VAN HAAREN (2011: 10). RBINS.

\**Arrenurus batillifer* Koenike, 1896

ROUSSEAU (1906: 184); WALTER (1909: 49); COOREMAN (1940: 9).

\**Arrenurus bicuspidator* Berlese, 1885  
COOREMAN (1940: 10). RBINS.

\**Arrenurus bifidicodulus* Piersig, 1897  
ROUSSEAU (1906: 185); WALTER (1909: 50); COOREMAN (1940: 10). *Arrenurus brachyurus* Viets, 1914. COOREMAN (1945: 12). RBINS.

\**Arrenurus biscissus* Lebert, 1879  
New for Belgium.  
New records. 1/0/0, sandpit, Weerde, 50° 58'46" N 4° 28'55" E, 8.V.2001; 0/2/0, Uffelschebeek, 51° 10.191 N, 5° 46.198 E, 30.V.2012.

\**Arrenurus bruzelii* Koenike, 1885  
ROUSSEAU (1903: 305, 321, 1906: 184); WALTER (1909: 50); COOREMAN (1940: 9). RBINS.

\**Arrenurus buccinator* (Müller, 1776)  
COOREMAN (1940: 10, 1945: 2). Syn.: *Arrenurus caudatus* (De Geer, 1778). ROUSSEAU (1903: 321, 1906: 182); WALTER (1909: 49).

*Arrenurus claviger* Koenike, 1885  
ROUSSEAU (1906: 184); WALTER (1909: 50); COOREMAN (1940: 10).

*Arrenurus compactus* Piersig, 1894  
ROUSSEAU (1903: 305, 1906: 182); WALTER (1909: 49); COOREMAN (1940: 9).

\**Arrenurus crassicaudatus* Kramer, 1875  
ROUSSEAU (1903: 287, 1906: 184); WALTER (1909: 50); COOREMAN (1940: 9). RBINS.

*Arrenurus crenatus* Koenike, 1896  
ROUSSEAU (1909: 450); WALTER (1909: 49); COOREMAN (1940: 9).

\**Arrenurus cuspidator* (Müller, 1776)  
ROUSSEAU (1909: 450); WALTER (1909: 49); COOREMAN (1940: 9). RBINS.

\**Arrenurus cylindratus* Piersig, 1896  
COOREMAN (1940: 10); DEWEZ (1985: 6).

\**Arrenurus fimbriatus* Koenike, 1885  
ROUSSEAU (1909: 450); WALTER (1909: 50); COOREMAN (1940: 9).

*Arrenurus fontinalis* Viets, 1920  
COOREMAN (1954: 868).

*Arrenurus forcipatus* Neuman, 1880  
ROUSSEAU (1909: 450); WALTER (1909: 50); COOREMAN (1940: 9) (laps. *Arrenurus forcipatus*).

\**Arrenurus globator* (Müller, 1776)  
LAMEERE (1895: 503); ROUSSEAU (1903: 305, 1906: 182); WALTER (1909: 49); COOREMAN (1940: 10, 1945: 2); VERCAUTEREN & VAN HAAREN (2011: 10). RBINS.

\**Arrenurus inexploratus* Viets, 1930  
COOREMAN (1945: 12). RBINS.

\**Arrenurus integrator* (Müller, 1776)  
COOREMAN (1940: 9). Syn.: *Arrenurus solidus* Piersig, 1894. ROUSSEAU (1909: 450); WALTER (1909: 50). RBINS.

\**Arrenurus knauthi* Koenike, 1895  
ROUSSEAU (1903: 321, 1909: 450); WALTER (1909: 50); COOREMAN (1940: 9).

\**Arrenurus latus* Barrois & Moniez, 1887

New for Belgium.

New records. 1/0/0, Vossem, 29.VI.1942, leg. E. Leloup (RBINS); 1/0, Beemden, Landen, 11.VI.1998; 6/0, Hoeilaart, 4.V.1999; 1/0, Molsbroek, Lokeren, 9.VII.1999; 4/0, Kasteel Terlamen, Zolder, 28.VII.1998; 11/0, Berlare Broek, Berlare, 20.V.1999; 37/43/0, Panneweel, St. Gillis-Waas, 51° 14'35" N 4° 08'02" E, 26.VI.2001.

\**Arrenurus leuckarti* Piersig, 1894

New for Belgium.

New records. 1/0, Asbroekvijver, Lanaken, 8.VI.1998; 1/0, E-10 fen, Zwartwater, Turnhout, 29.VI.1998; 0/3/0, Ruisseau La Wamme, W of Môchamps, 50° 06.074 N 5° 24.481 E, alt. 518 m asl, 29.VIII.2003, leg. H. Smit.

*Arrenurus maculator* (Müller, 1776)

ROUSSEAU (1903: 287, 1906: 184); WALTER (1909: 49); COOREMAN (1940: 9). Syn.: *Arrenurus leuckarti* [err., non Piersig, 1894 – WALTER (1909)]. ROUSSEAU (1903: 287, 1906: 182).

\**Arrenurus muelleri* Koenike, 1901

COOREMAN (1945: 12). RBINS.

*Arrenurus neumani* Piersig, 1895

ROUSSEAU (1906: 182); WALTER (1909: 50); COOREMAN (1940: 10).

\**Arrenurus nodosus* Koenike, 1896

COOREMAN (1945: 12). RBINS.

\**Arrenurus perforatus* George, 1881

New for Belgium.

New record. 7/0, Mechels Broek, Mechelen, 9.VI.1998; 1/0, Geertruivijver, Prinsenspark, Mol, 29.VI.1998.

\**Arrenurus securiformis* Piersig, 1894

COOREMAN (1942b: 8, 1945: 12). RBINS.

\**Arrenurus sinuator* (Müller, 1776)

ROUSSEAU (1903: 287, 1906: 184); WALTER (1909: 50); COOREMAN (1940: 9). RBINS.

\**Arrenurus stecki* Koenike, 1894

New for Belgium.

New record. 0/1/0, Rijmenam, IV.1943, leg. A. Collart (RBINS).

\**Arrenurus tricuspikator* (Müller, 1776)

ROUSSEAU (1906: 184). Syn.: *Arrenurus maximus* Piersig, 1894. ROUSSEAU (1903: 321, 1906: 182); WALTER (1909: 49, 50); COOREMAN (1940: 10). RBINS.

\**Arrenurus truncatellus* (Müller, 1776)

COOREMAN (1942b: 8, 1945: 12). RBINS.

\**Arrenurus virens* Neuman, 1880

ROUSSEAU (1909: 450); WALTER (1909: 50); COOREMAN (1940: 9).

\**Arrenurus zachariae* Koenike, 1886

New for Belgium.

New records. 0/1/0, Vuilbeek, Bosvoorde, 30.IV.1942, leg. G. Marlier (RBINS); 1/0/0, La Lienne, Lierneux, 21.VIII.1975, leg. G. Marlier (RBINS).

## Discussion

As stated before, the number of species in Belgium is rather low compared to the number of species in the Netherlands. Not many acarologists have studied water mites in Belgium. Moreover, not all habitats have been studied extensively. We expect that more collecting in streams and interstitial

habitats in the Ardennes, temporary habitats, moorland pools and standing water with a good water quality will result in a much higher number of species.

### Acknowledgements

A part of the material has been identified by the late Henk van der Hammen (Amsterdam), Gert van Ee (Haarlem) retrieved these data from his database. We would like to thank Wouter Dekoninck for his help with the collection of the Royal Belgian Institute of Natural Sciences.

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