

**NEW RECORDS OF THE WATER MITE FAMILIES
ARRENURIDAE, NUDOMIDEOPSIDAE AND
ATHIENEMANNIIDAE (ACARI: HYDRACHNIDIA)
FROM FYR MACEDONIA AND SERBIA AND MONTENEGRO**

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New records of 20 water mite species of the family Arrenuridae, Nudomideopsidae and Athienemanniidae are reported from Macedonia and Serbia and Montenegro. All previous records are given from Macedonia and Serbia and Montenegro, as well as the habitat where the species were collected. Three water mite species are reported for the first time for the fauna of Macedonia and five species are reported new for the fauna of Serbia and Montenegro. *Stygohydracarus subterraneus* Walter, 1947, *Arrenurus cylindratus latigenitalis* Lundblad, 1956, and *Arrenurus distans* Walter, 1927, were found for the first time for the fauna of the Balkans. *Nudomideopsis motasi* Petrova, 1966 and *N. montenegrinus* Pešić, 2001 are synonymized with *N. latipalpis* (Angelier, 1963).

KEY WORDS: Acari, water mites, Arrenuroidea, Macedonia, Serbia and Montenegro.

INTRODUCTION

Arrenuroidea are a superfamily of water mites represented in the Mediterranean region by 130 species and two subspecies (SMIT *et al.* 2000). In this paper we present new data on the geographical distribution and habitat preference of members of the genera *Nudomideopsis*, *Stygohydracarus* and *Arrenurus*. For each species the known pattern of distribution is given, followed by new records for the area reviewed in this paper. In addition, for each species the habitat in which the species were collected is given. Finally, the taxonomy of a number of *Nudomideopsis* species is discussed.

MATERIAL AND METHODS

The material published in this paper is part of water mite collections collected between 1950 and 1961, from different sites in Macedonia (Pešić, 2003). A small part of this material comes from Bosnia and Croatia (Pešić, 2002a). The collectors were Dr. Mitko Georgiev and especially Dr. Trajan Petkovski. Water mites were collected by hand netting, sorted on the spot from the living material, and conserved in alcohol. This collection as well as material published in this paper is lodged in the collection of V. M. Pešić, Podgorica. The composition of the material examined is given as: (males/females/deutonymphs). The following abbreviations are used: P-1 = palp, first segment, asl = above sea level.

RESULTS

Family Nudomideopsidae

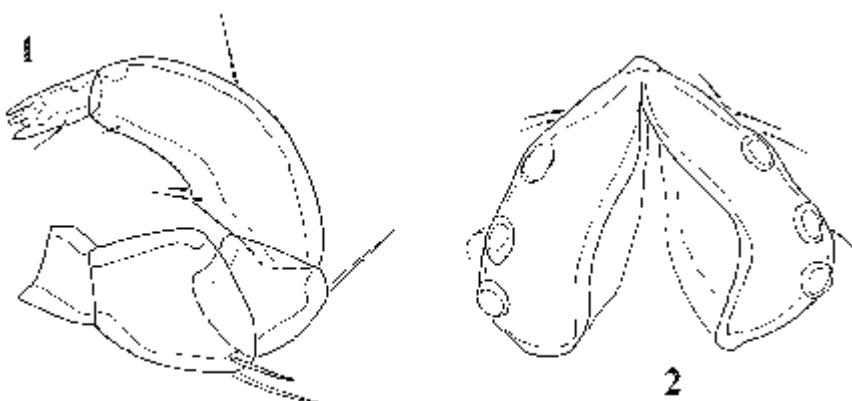
Nudomideopsis latipalpis (E. Angelier, 1963)
(Fig. 1-2)

Nudomideopsis motasi - PETROVA, 1966: 267, figs. 1-4. **new syn.**
Nudomideopsis montenegrinus - PEŠIĆ, 2001: 73, figs. I 1-3. **new syn.**

Distribution: S France, Bulgaria, Croatia, Crna Gora.

Previous records: **Crna Gora** (Berane – PEŠIĆ, 2001).

Remarks: PETROVA (1966) compared *Nudomideopsis motasi* Petrova with *Nudomideopsis longipalpis* Szalay and *Nudomideopsis fonticola* Motas & Tanasachi, but not with *N. latipalpis* (E. Angelier, 1963), a species similar in the general shape and dimensions of idiosoma and palps. After the original descrip-



Figs. 1-2. *Nudomideopsis latipalpis* (E. Angelier, 1963), cave "Markarova Spilja" near Ogulin, Croatia, female: 1 = palp; 2 = genital field.

tion, only one further record from Croatia of *Nudomideopsis motasi* was published (SMIT *et al.* 2000), but without additional information on its morphology or taxonomic relationships. In the shape and dimensions of the palps (Fig. 1) and genital field (Fig. 2), specimens from Croatia agree well with the description given by ANGELIER *et al.* (1963) for *N. latipalpis*. All other available morphological details confirm that *N. motasi* is a junior synonym of *N. latipalpis*. The description of *N. montenegrinus*, was based on a single male. PEŠIĆ (2001) considered it very close to *N. motasi* and *N. latipalpis*, but differing in a longer P-5 and a more slender genital field. As these characters are known to be largely variable, *N. montenegrinus* should be regarded a junior synonym of *N. latipalpis*.

Habitat: hyporheic interstitial; in France in a spring (ANGELIER *et al.* 1963).

Family Athienemanniidae

Stygohydracarus subterraneus Walter, 1947

Distribution: W Palearctic (Switzerland, Germany, Italy?, Romania and Hungary).

Material examined: **Crna Gora:** CG16 Podgorica, Cave "Sutimska Jama" near village Beri, 03.02.1997, leg. Karanović (0/0/1); ibid., 18.09.1997, leg. Karanović (0/0/1).

Remarks: The species is new for the fauna of the Balkans. The deutonymphs of Montenegro are similar to *S. subterraneus* as described by WALTER (1947). Further fieldwork on interstitial habitats in S Europe and statistical analysis of larger populations are needed before we can decide if *S. subterraneus* is a single, widely distributed and highly variable species or a complex of species with restricted distributions (SMIT *et al.* 2000).

Habitat: hyporheic interstitial, springs.

Family Arrenuridae

Genus *Arrenurus*

Subgenus *Arrenurus*

Arrenurus abbreviator Berlese, 1888

Distribution: W Palearctic.

Material examined: **Macedonia:** MA118 Prespa Lake, reed near Perovo (unknown locality), 20.08.1960 T. Petkovski, ex coll. Petkovski (2/0/0); MA131 Struga, canals, 26-31.08.1956, ex coll. Georgiev & Petkovski (2/0/0); MA64 Strusko ..?(unreadable locality, probably Strusko Blato), 27.08.1958, ex coll. Georgiev & Petkovski (3/0/0).

Previous records: **Serbia:** (Belgrade, the Blace lake, Gradiski Rit – GEORGEVITSCH, 1903); **Macedonia** (Ohrid – GEORGIEV, 1957).

Habitat: lakes, ponds.

Arrenurus albator (Müller, 1776)

Distribution: W Palearctic.

Material examined: **Crna Gora:** CG52 Skadar Lake near station (=Vranjina), 07.10.1960, 5 m asl., leg. Georgiev & Petkovski (0/1/0)

Previous records: **Serbia** (the Blace lake – GEORGEVITSCH, 1903).

Habitat: lakes, ponds.

Arrenurus bicuspidator Berlese, 1885

Distribution: Palearctic.

Material examined: **Crna Gora:** CG49 Skadar Lake, pools near station (=Vranjina), 06.10.1960, 5 m asl., ex coll. Georgiev & Petkovski (2/0/0); CG51 Skadar Lake, mouth of the Plavnica river, 07.10.1960, 5 m asl., ex coll. Georgiev & Petkovski (9/0/0); CG52 Skadar Lake near station (=Vranjina), 07.10.1960, 5 m asl., ex coll. Georgiev & Petkovski (0/5/0).

Habitat: lakes, ponds.

Remarks: New for the water mite fauna of Serbia and Crna Gora.

Arrenurus bruzelii Koenike, 1885

Distribution: Palearctic.

Material examined: **Macedonia:** MA118 Prespa Lake, 853 m asl., reed near village Perovo, 20.08.1960 T. Petkovski, ex coll. Petkovski (4/2/0); MA131 Struga, canals, 26-31.08.1956, ex coll. Georgiev & Petkovski (25/10/0); MA59 Ohrid Lake, «Oko» (on label) 25.07.1956, ex coll. Georgiev & Petkovski (1/0/0).

Previous records: **Macedonia:** Ohrid Lake; Struga – GEORGEVITSCH, 1906, Ohrid Lake – STANKOVIĆ, 1931; Ohrid Lake, Skopje. – GEORGIEV, 1957).

Habitat: lakes, ponds.

Arrenurus claviger Koenike, 1885

Distribution: W Palearctic

Material examined: **Crna Gora:** CG49 Skadar, pools near station (=Vranjina), 06.10.1960, 5 m asl., ex coll. Georgiev & Petkovski (4/8/0); CG51 Skadar Lake, mouth of the Plavnica river, 07.10.1960, 5 m asl., ex coll. Georgiev & Petkovski (0/7/0); CG52 Skadar Lake near station (=Vranjina), 07.10.1960, 5 m asl., ex coll. Georgiev & Petkovski (0/3/0).

Previous records: **Crna Gora:** Skadar Lake – PEŠIĆ, 2002; **Macedonia:** Jenidze Vardar – GEORGEVITSCH, 1906.

Habitat: lakes, ponds.

Arrenurus cuspidator (Müller, 1776)

Distribution: Palearctic.

Material examined: **Macedonia:** MA85 «*Arrenurus*» (on label), Rasche near Skopje, without sampling date identification, ex coll. Georgiev & Petkovski (0/3?/0); MA30 eastern Rasche near Skopje, pool, 04.12.1958, leg. Petkovski (0/2/0)

Previous records: **Serbia:** Koviljski Rit – RATAJAC & RAJKOVIĆ, 1992; **Macedonia:** Ohrid Lake, Kumanovo, Kocani, Skopje – GEORGIEV, 1957; Skopje – K. VIETS, 1936.

Habitat: ponds, pools of running waters.

***Arrenurus cuspidifer* Piersig, 1894**

Distribution: Palearctic.

Material examined: **Crna Gora:** CG49 Skadar Lake, pools near station (=Vranjina), 06.10.1960, 5 m asl., ex coll. Georgiev & Petkovski (10/7/0); **Macedonia:** MA118 Prespa Lake, 853 m asl., reed near village Perovo, 20.08.1960 T. Petkovski, ex coll. Petkovski (2/1/0); MA116 the Golema Bara pool in village Dolno Lisiche, 29.06.1960 Dragan, ex. coll. Petkovski (5/6/0); MA80 Matka, 1956, ex coll. Georgiev & Petkovski (0/1/0); MA96 «*Arrenurus*» (on label), Rasche near Skopje, without sampling date identification, ex coll. Georgiev & Petkovski (0/13?/0); MA55 «*Arrenurus* 13» (on label), Rachinovo (?), 1956, ex coll. Georgiev & Petkovski (4/15/0); MA131 Struga, canals, 26-31.08.1956, ex coll. Georgiev & Petkovski (75/10/0); MA51 «*Limnesia undulata*» (on label), Ohrid, without sampling date, ex coll. Georgiev & Petkovski (7/3/0); MA32 pool Lisiche, 14.06.1950, leg. Petkovski (3/4/0); MA5 village Dolno Lisiche-Skopsko, 15.06.1960, Dragan, ex coll. Petkovski (0/5/0); MA21 Trubarevo, canals, 31.07.1960, leg. Petkovski (0/1?/0); MA38 pool near the dairy in Madjari village, 11.06.1960, Dragan, ex coll. Georgiev & Petkovski (0/1/0); MA30 eastern Rasche near Skopje, pool, 04.12.1958, leg. Petkovski (2/1/0);

Previous records:: **Crna Gora:** Skadar Lake – THON, 1903; **Serbia:** Belgrade – GEORGEVITSCH, 1903; **Macedonia:** Dojran – GEORGEVITSCH, 1906, Struga – GEORGIEV, 1957.

Habitat: ponds, pools of running waters.

***Arrenurus distans* Walter, 1927**

Distribution: Mediterranean.

Material examined: **Macedonia:** MA4 Vragolija, 29.06.1961, leg. Petkovski (2/1?/0)

Remarks: New for the fauna of the eastern Mediterranean.

Habitat: pools.

***Arrenurus latus* Barrios & Moniez, 1887**

Distribution: W Palearctic.

Material examined: **Macedonia:** MA118 Prespa Lake, 853 m asl., reed near village Perovo, 20.08.1960, T. Petkovski, ex coll. Petkovski (1/0/0)

Previous records: **Macedonia:** Ohrid Lake – GEORGIEV, 1957.

Habitat: lake.

***Arrenurus papilator* (Müller, 1776)**

Distribution: W Palearctic

Material examined: **Macedonia:** MA60 Petrov canal, without sampling date, ex coll. Georgiev & Petkovski (2/0/0); MA89 Skopje, pool near the glass plant (southern slopes of Vodna mountain), 07.04.1956, ex coll. Georgiev & Petkovski (1/8/0); MA45 Madjari village near Skopje, without sampling date, ex coll. Georgiev & Petkovski (0/1/0).

Previous records: **Macedonia:** Struga – GEORGIEV, 1957.

Habitat: temporary ponds.

***Arrenurus radiatus* Piersig, 1894**

Distribution: Palearctic.

Material examined: **Macedonia:** MA131 Struga, canals, 26-31.08.1956, ex coll. Georgiev & Petkovski (2/0/0)

Previous records: **Serbia:** Belgrade – GEORGEVITSCH, 1903; **Macedonia:** Struga – GEORGIEV, 1957.

Habitat: ponds, canals.

Subgenus Micrracarus***Arrenurus integrator* (Müller, 1776)**

Distribution: W Palearctic.

Material examined: **Macedonia:** MA1 stream in the Madjari village, 11.06.1960, Dragan, ex coll. Petkovski (1/0/0); MA37 pool near the dairy in the Madjari village near Skopje, 11.06.1960, Dragan, ex coll. Georgiev & Petkovski (0/1/0); MA40 the Madjari village near Skopje, 28.04.1959, ex coll. Georgiev & Petkovski (0/1/0).

Remarks: New for the fauna of Macedonia.

Habitat: lakes, ponds.

***Arrenurus octagonus* (Halbert, 1906)**

Distribution: W Palearctic.

Material examined: **Macedonia:** MA24 pool fed by spring, Mojanci near Skopje, 12.09.1960, leg. Petkovski (2/0/0); MA56 Petrovac, 24.01.1955, ex coll. Georgiev & Petkovski (1/0/0); MA69 Vinica, rice field, 08.08.1960, ex coll. Georgiev & Petkovski (4/2/0); MA85 «*Arrenurus*» (on label), Rasche near Skopje, without sampling date identification, ex coll. Georgiev & Petkovski (1/1/0); MA25 the Treska river, 14.07.1960, leg. Petkovski (1/0/0).

Previous records: **Macedonia:** Skopje, river Treska, Skopje – SCHWOERBEL, 1963.

Habitat: lakes, ponds.

***Arrenurus sinuator* (Müller, 1776)**

Distribution: Palearctic

Material examined: **Crna Gora:** CG49 pool near Skadar Lake, 06.10.1960, ex coll. Georgiev & Petkovski (3/3/0); CG52 Skadar Lake near station (Vranjina), 5 m asl., 07.10.1960, ex coll. Georgiev & Petkovski (3/1/0); **Macedonia:** MA1 stream in the Madjari village, 11.06.1960, Dragan, ex coll. Petkovski (1/0/0); MA11 Dojran Lake, litoral, 02.10.1956, leg. Petkovski (2/0/0); MA42 behind the reed (on label, probably Dojran Lake), 02.10.1956, litoral, ex. coll. Georgiev & Petkovski, (3/3/0); MA117 Prespa Lake, 5-10 m (depth), mud, 21.8.1960, T. Petkovski, ex. coll. Petkovski (4/1/0); MA119 Prespa Lake, submerged vegetation, 19.08.1960, ex. coll. Petkovski (1/1/1); MA120 Prespa Lake, 1-2 m depth, 18.8.1960, ex coll. Petkovski (7/0/0); MA124 Dojran Lake, 11.02.1959, ex coll. Petkovski (1/0/0); MA138 behind the reed - grass (on label, probably Dojran Lake), 02.10.1956, ex coll. Georgiev & Petkovski (18/0/0); MA31 Ohrid, 695 m asl., 29.07.1960, leg. Petkovski (0/3/0); MA120 Prespa Lake, 853 m asl, 1-2 m

depth, 18.08.1960, ex coll. Petkovski (6/1/0); MA121 Dojran Lake, 5-6 m depth, 28.10.1960, ex coll. Petkovski (1/20/0); MA131 Struga, canals, 26-31.08.1956, ex coll. Georgiev & Petkovski (4/0/0); MA78 Dojran Lake, litoral, 03.10.1956, ex coll. Georgiev & Petkovski (23/11/0); MA35 Prespa Lake, 1-2 m depth, vegetation, 19.08.1960, leg. Petkovski (2/2/1); MA122 Dojran Lake, 10.02.1959, ex coll. Petkovski (6/5/0); MA42 behind the reed (on label, probably Dojran Lake), 02.10.1956, litoral, ex coll. Georgiev & Petkovski (0/3/0); MA123 Dojran Lake, 07.03.1959, ex coll. Petkovski (2/12/0); MA123a (5/22/0); MA124 Dojran Lake, 148 m asl., 11.02.1959, ex coll. Petkovski (8/62/0); MA11 Dojran Lake, litoral, 02.10.1956, leg. Petkovski (1/0/0); MA35 Prespa Lake, 1-2 m depth, vegetation, 19.08.1960, leg. Petkovski (6/3/2); MA108 Dojran Lake, 25.02.1960, litoral 4-5 m depth, ex coll. Petkovski (1/2/0); MA30 eastern Rasche near Skopje, the pool, 04.12.1958, leg. Petkovski (0/1/0).

Previous records: **Crna Gora:** Skadar Lake – THON, 1903; Skadar Lake – PEŠIĆ, 2002; **Serbia:** Belgrade – GEORGEVITSCH, 1903; **Macedonia:** Prespa Lake, Ohrid Lake - VIETS, 1936; Ohrid Lake, Skopje – GEORGIEV, 1957.

Habitat: lakes, ponds.

Arrenurus perforatus George, 1881

Distribution: Palearctic.

Material examined: **Crna Gora:** CG52 Skadar Lake near station (=Vranjina), 07.10.1960, 5 m asl., ex coll. Georgiev & Petkovski (0/9/0); **Macedonia:** MA36 Vardar near Skopje, without sampling date, leg. Petkovski (0/1/0).

Remarks: New for the water mite fauna of Macedonia and Serbia and Crna Gora.

Habitat: lakes, ponds.

Subgenus *Megaluracurus*

Arrenurus cylindratus latigenitalis Lundblad, 1956

Distribution: W Palearctic.

Material examined: **Crna Gora:** CG52 Skadar Lake near station (=Vranjina), 07.10.1960, ex coll. Georgiev & Petkovski (0/4/0).

Remarks: This is the first records of this subspecies for the water mite fauna of the Balkans.

Habitat: lakes.

Arrenurus globator (Müller, 1776)

Distribution: Palearctic.

Material examined: **Macedonia:** MA1 the stream in the Madjari village, 11.06.1960, Dragan, ex coll. Petkovski (1/0/0); MA37 pool near the dairy in the Madjari village, 11.06.1960, Dragan, ex coll. Georgiev & Petkovski (1/6/0); MA42 Pozadi Trska, 02.10.1956, littoral, ex coll. Georgiev & Petkovski (2/0/0); MA118 Prespa Lake, 853 m asl., Roricht near Perovo 20.08.1960 T. Petkovski, ex coll. Petkovski (4/13/0); MA80 Matka, 1956, ex coll. Georgiev & Petkovski

(0/2/0); MA11 Dojran Lake, 148 m asl., litoral, 02.10.1956, leg. Petkovski (0/10/0); MA131 Struga, canals, 26-31.08.1956, ex coll. Georgiev & Petkovski (9/0/0); MA1 stream in the Madjari village, 11.06.1960, Dragan, ex coll. Petkovski (1/0/0); MA127 Madjari, 1956, ex coll. Georgiev & Petkovski (0/1/0); MA100 Macedonia, without locality and sampling date, ex coll. Georgiev & Petkovski (0/1/0); MA42 Pozadi Trska, 02.10.1956, litoral, ex coll. Georgiev & Petkovski (2/0/0); MA40 the Madjari village near Skopje, 28.04.1959, ex coll. Georgiev & Petkovski (0/9/0); MA27 Petrovac, pool, 28.03.1959, ex coll. Georgiev & Petkovski (0/6/0); MA6 Rasche near Skopje, 24.12.1958, ex coll. Georgiev & Petkovski (0/4/0); MA70 pool nr. 2 in the Madjari village, 11.06.1960, Dragan, ex coll. Georgiev & Petkovski (1/4/0); MA84 «*Arrenurus*» (on label), Matka, without sampling date, ex coll. Georgiev & Petkovski (0/1/0).

Previous records: **Crna Gora:** Durmitor – SMIT *et al.*, 2000; Skadar Lake, Podgorica – PEŠIĆ, 2002; **Macedonia:** Skopje, Ohrid Lake – VIETS, 1936; Struga, Ohrid, Skopje, Strumica – GEORGIEV, 1957.

Habitat: pools, lakes.

Subgenus *Truncaturus*

Arrenurus truncatellus (Müller, 1776)

Distribution: Palearctic.

Material examined: **Serbia:** SR21 Pool near river Pschinja, near Monastir Sv.Prohor Pscinjski (Serbian-Macedonian border), 06.05.2002, leg. Pešić (1/1/0).

Remarks: New for the water mite fauna of Serbia and Crna Gora.

Habitat: pools.

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**НОВИ НАЛАЗИ ВОДЕНИХ ГРИЊА ИЗ ФАМИЛИЈА
ARRENURIDAE, NUDOMIDEOPSIDAE И ATHINEMANNIDAE
(ACARI: HYDRACHNIDIA) ИЗ БЈР МАКЕДОНИЈЕ И СРБИЈЕ
И ЦРНЕ ГОРЕ**

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И з в о д

Нови налази за 20 врста водених гриња из фамилија Arrenuridae, Nudomideopsidae and Athinemanidae. Дати су са подручја Македоније и Србије и Црне Горе. Дати су и претходни налази ових врста у Макединији и Србији и Црној Гори, као и типови станишта где су ове врсте сакупљене. Три врсте водених гриња: *Arrenurus perforatus* George, 1881, *Arrenurus integrator* (Müller, 1776) и *Arrenurus distans* Walter, 1927, по први пут су регистроване за фауну Македоније, док су пет врста *Stygohydracarus subterraneus* Walter, 1947, *Arrenurus bicuspis* Berlese, 1885, *Arrenurus perforatus* George, 1881, *Arrenurus cylindratus latigenitalis* Lundblad, 1956, у *Arrenurus truncatellus* (Müller, 1776), регистроване су као нове за фауну Србије и Црне Горе. *Stygohydracarus subterraneus* Walter, *Arrenurus cylindratus latigenitalis* Lundblad и *Arrenurus distans* Walter, регистроване су по први пут за фауну Балкана. Врсте *Nudomideopsis motasi* Petrova, 1966 и *N. montenegrinus* Релјић, 2001, синонимизиране су са врстом *N. latipalpis* (Angelier, 1963).

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