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Article

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## A new species of *Tetranychopsis* is described and the genus *Mesobryobia* (Acari: Tetranychidae, Bryobiinae) reported from Hungary for the first time

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### Abstract

A new *Tetranychopsis* species, *Tetranychopsis vertesiensis* **sp. n.**, is described from Central-Hungary on grasses (Poaceae) based on females. The new species differs from the previously described congeners in the length of dorsal setae, all setae (except *v1* and *v2*) similar in shape and length and number of setae on femur of leg I (10), which is a unique character combination within the genus *Tetranychopsis*. The first Central-European record of the genus *Mesobryobia* is presented. Specimens of *Mesobryobia terpoghossiani* (Bagdasarian, 1959) were collected in two different places in Hungary.

**Key words:** spider mites, taxonomy, Hungary

### Introduction

Spider mites are a diverse group of plant-feeding mites occurring in most regions of the world. Several species are known as pests (e.g. from genera *Tetranychus*, *Oligonychus* or *Bryobia*), but several species from the poorly known genera are only phytophagous species of no economic importance.

The family Tetranychidae has received remarkable attention world-wide, but the Central European countries are scarcely investigated. Hungary is no exception, with only 38 recorded spider mite species (Kontschán & Ripka 2017).

The genus *Tetranychopsis* comprises 9 species, namely *T. borealis* Ehara & Mori, *T. cerasi* Strunkova, *T. horridus* (Canestrini & Fanzago), *T. hystriciformis*, Reck, *T. iranensis* Kanjani et al., *T. kuzminae* Strunkova, *T. matikashvillae* Reck, *T. naraniensis* Chaudhri et al. and *T. spiraeae* Reck (Migeon & Dorkeld 2016–2019).

The aim of our paper is to describe a new grass-inhabiting *Tetranychopsis* species from Hungary and give the first Central-European record of *Mesobryobia terpoghossiani* (Bagdasarian 1959) based on Hungarian specimens.

### Material and methods

Specimens of the new species (*Tetranychopsis vertesiensis* **sp. n.**) were collected in some dry dolomite steppe meadows in the Vértes Mountains, in Central Hungary using beating methods on

different undetermined grass species (Poaceae). The specimens were placed in lactic acid for a week and then slide-mounted in Hoyer's medium. The holotype and some paratypes of the new species are stored in the Hungarian Natural History Museum, Budapest (HNHM) and other paratypes in the Arachnida collection of the Natural History Museum of Geneva (Switzerland) (NHMG). The specimens of *Mesobryobia terpoghossiani* (Bagdasarian 1959) were collected from the same habitat as the new *Tetranychopsis* species using the same methods.

All specimens were examined with a Leica 1000 scientific microscope; the illustrations were made with the aid of a drawing tube on this microscope. All measurements and scales are given in micrometers. Legs are measured from the basal line of trochanters to tip of tarsi.

## Result

Family Tetranychidae Donnadieu, 1875

Subfamily Bryobiinae Berlese, 1913

Tribe Hystrichonychini Pritchard & Baker, 1955

Genus *Tetranychopsis* Canestrini, 1889

### *Tetranychopsis vertesiensis* sp. n.

(Figures 1–13)

#### *Material examined*

Holotype. Female. Hungary, Vértes Mountains, close to Csákberény (Fejér county), dry dolomite steppe meadow, from grasses, 47°20'39.2562"N, 18°20'58.5204"E, ca 150 m asl., 06 June 2019, leg. J. Kontschán (HNHM). Paratype: one female, locality and date same as in holotype (NHMG). Three females, with same locality as holotype, 08 June 2015, leg. J. Kontschán (HNHM). One female, Hungary, Vértes Mountains, close to Gánt (Fejér county), Nagy Vásár-hegy, a dry dolomite steppe meadow, from grasses, 47°25'33.9132"N, 18°25'3.4644"E, ca 250 m asl., 08 June 2015, leg. J. Kontschán (HNHM).

#### *Diagnosis*

All paired marginal, opisthosomal setae long, but caudal setae (*fl*, *f2* and *hl*) longer than others, *sc1* and *sc2* equal in length. Femur I with ten setae, of which four are longer than rest.

#### *Description*

##### **Female** (n= 6)

Color in life red. Idiosoma broad oval. Length of body 455–468, width 366–370, leg I 360–365; leg II 275–285; leg III 225–265; leg IV 265–275.

*Dorsum* (Figure 1). Area between setae *v1*–*v2* smooth (Figure 3), area between setae *v2*–*sc1* and setae *c1*–*d1* with transverse striae, lateral and posterior idiosoma with irregular striae forming a few cells between *d1*–*hl*. Peritremes as indicated in Figure 2.

Dorsal setae set on prominent tubercles stout, rod-like and serrate; all dorsal setae long except setae *v1* and *v2*. Setae *v2* three times longer than *v1* and *v2* 0.5 shorter than other dorsal setae. Length of dorsal setae *v1* 30–35, *v2* 86–90, *sc1* 213–220, *sc2* 185–198, *c1* 225–232, *c2* 212–220, *c3* 210–215, *d1* 179–186, *d2* 195–200, *d3* 198–204, *e1* 208–212, *e2* 185–192, *e3* 200–208, *fl* 262–270, *f2* 242–250, *hl* 243–251. Distances between dorsal setae; *v1*–*v1* 37–40, *v2*–*v2* 117–120, *sc1*–*sc1* 240–245, *sc2*–*sc2* 332–337, *c1*–*c1* 28–30, *c2*–*c2* 385–390, *c3*–*c3* 427–432, *d1*–*d1* 44–47, *d2*–*d2* 435–

439, *d3-d3* 451-457, *e1-e1* 46-50, *e2-e2* 426-430, *e3-e3* 401-404, *f1-f1* 264-270, *f2-f2* 195-198, *h1-h1* 135-141.

*Venter* (Figure 4). Coxisternal area between coxae I-II and III-IV with transverse striae and also behind coxa IV; posterior opisthosoma with longitudinal to oblique and V-shaped striae. Area between setae *4a-ag* with oblique striae, posterior to genito-anal area with V-shaped striae. Genito-anal area with one pair of aggenital setae (*ag*), two pairs of genital setae (*g1-2*) and ventricaudal setae (*h2-3*), and three pairs of pseudanal setae (*ps1-3*). Length of setae *la* 30-32, *lb* 19-23, *lc* 14-19, *2b* 25-27, *2c* 21-24, *3a* 35-38, *3c* 13-16, *4a* 16-19, *4c* 16-18, *ag* 21-24, *g1* 20-24, *g2* 19-22, *ps1* 24-26, *ps2* 22-25, *ps3* 19-22, *h2* 17-18, *h3* 16-19. All setae smooth, except pilose setae *lc*.

*Gnathosoma* (Figure 5). Ventral infracapitulum with two pairs of adoral setae *or1* 2-4 and *or2* 3-5, and one pair of subcapitular setae *m* 27-30. Palp five segmented, palp tarsus with one solenidion, three eupathidia and three simple setae; palp tibia with two setae and one stout claw with a dorsal seta, palp genu and palp femur each with one serrate, dorsal seta (Figure 3).

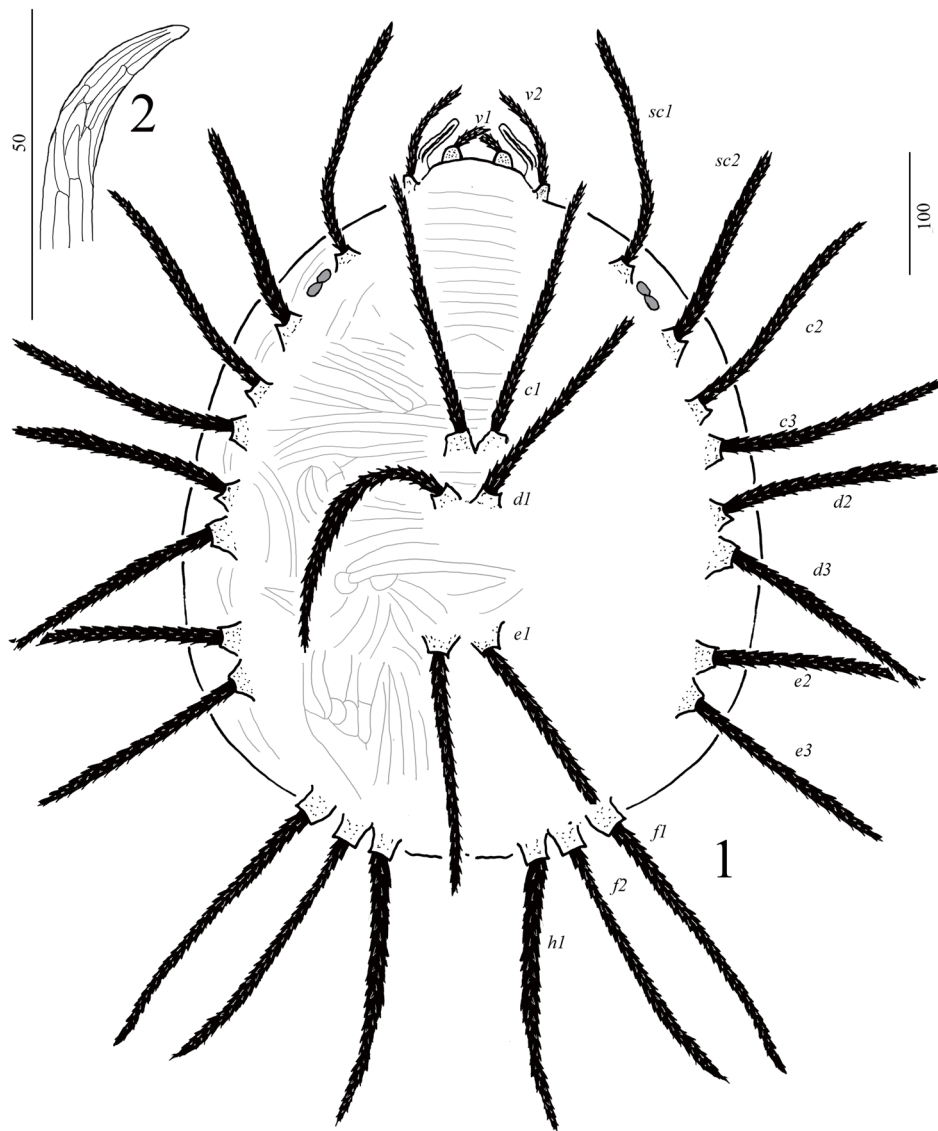
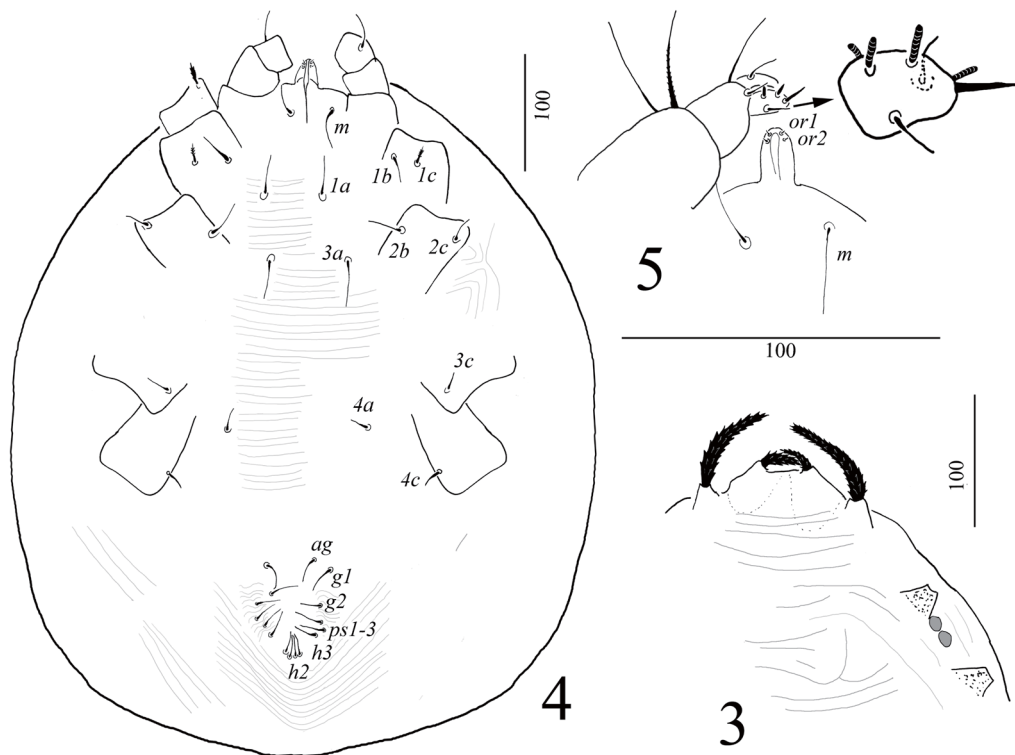


FIGURE 1-2. *Tetranychopsis vertesiensis* sp. n., holotype, female. 1. Dorsal view of idiosoma. 2. Peritreme.



**FIGURES 3–5.** *Tetranychopsis vertesiensis* sp. n., holotype, female. 3. Dorsal area between v1 and v2. 4. Ventral view of idiosoma. 5. Ventral view of gnathosoma and palp (arrow show the enlarged palp tarsus).

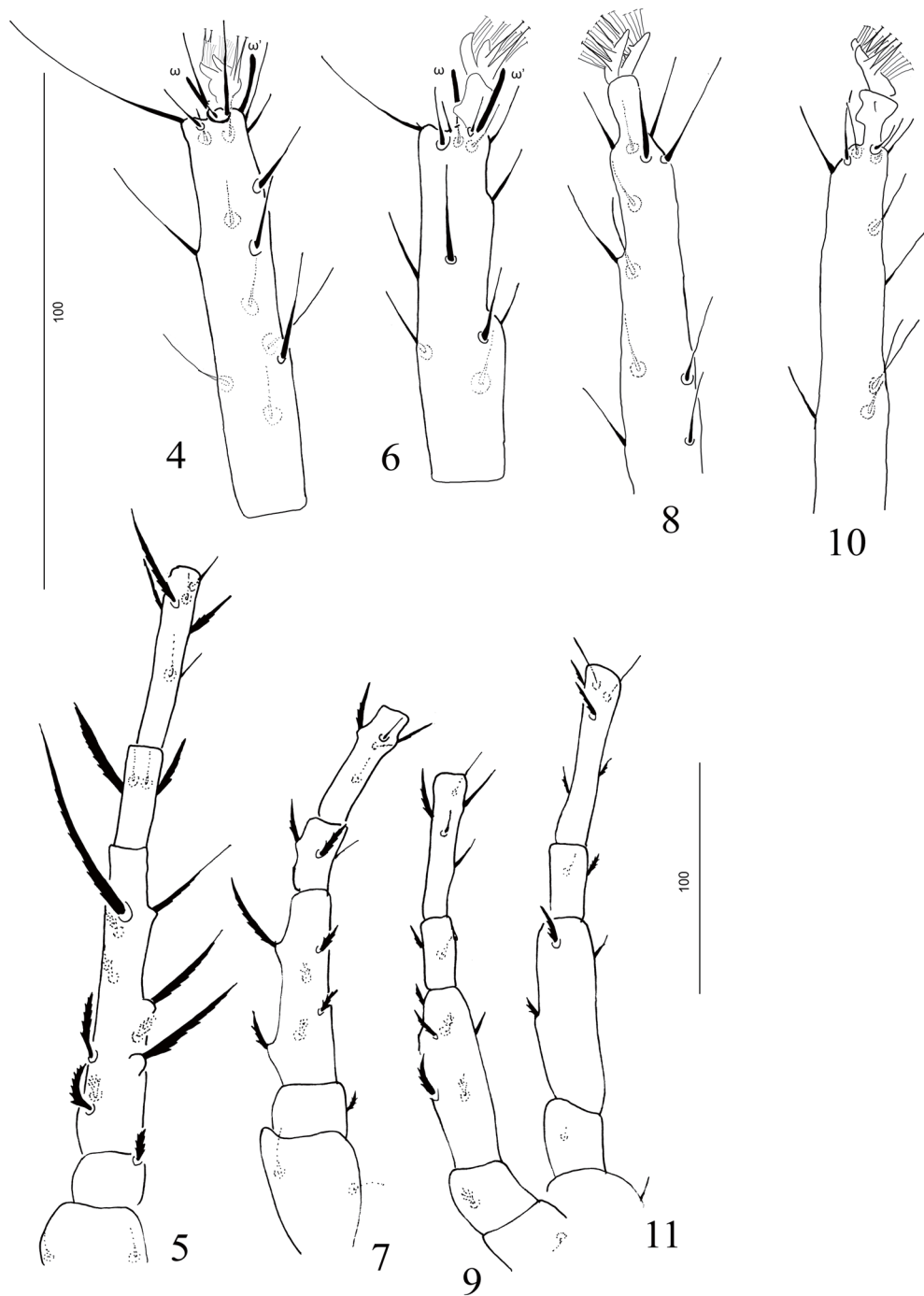
*Legs* (Figures 6–13). Setal formulae of leg segments as follows excluding the specialized sensory setae such as solenidia, eupathia and duplex setae (in parentheses): coxae 2-2-1-1; trochanters 1-1-1-1; femora 10-6-6-3; genua 4-3-2-2; tibiae 7(1 $\omega$ )-5-5-6; tarsi 19(2 $\zeta$  +2dup)-16(2 $\zeta$ +1dup)-12-11. Tarsi I and II with two eupathia (I $\zeta$ - $\zeta'$  12–14, II $\zeta$ - $\zeta'$  13–17), tibia I with a short solenidion ( $\omega$ ). Majority of leg setae serrated. Femur I with a very long (87–95) dorsal seta apically and three long (40–45) dorsal and lateral setae, other setae on femur I short.

#### *Etymology*

The name of the new species refers to the name of mountain where the specimens were collected.

#### *Notes on the host*

The majority of the host plants of all known *Tetranychopsis* species belong to the families Rosaceae and Betulaceae in addition some other dicotyledonous hosts are also known, but up to now no species were collected on monocotyledons (Migeon & Dorkeld 2016-2019). The new species was collected on grasses, which can be the host and the first record of this mite on monocotyledons, or it has moved from its host (unknown) to the grasses for unknown reasons.



**FIGURES 4–11.** Legs of *Tetranychopsis vertesiensis* sp. n., holotype, female, tarsi in higher magnification. 4. Ventral view of idiosoma. 5. Ventral view of gnathosoma and palp (arrow show the enlarged palp tarsus). 6–7. Dorsal view of leg I. 8–9. Dorsal view of leg II. 10–11. Dorsal view of leg III.

*Remarks*

Currently only three *Tetranychopsis* species are known with equally long paired marginal, opisthosomal setae, e.g. *Tetranychopsis cerasi* Strunkova, 1969 and *Tetranychopsis matikashviliae*

Reck, 1953 and *T. spiraeae* Reck, 1948. *T. cerasi* is from Tajikistan and *T. matikashviliae* from Armenia, Azerbaijan, Georgia and Kazakhstan, *T. spiraeae* is also known from Armenia, Azerbaijan, Georgia and Tajikistan (Bolland *et al.* 1998). The Bozai's key (1970) for the Hungarian spider mites and flat mites contained the species *Tetranychopsis spiraeae* Reck, 1948, but this species has never been collected in Hungary, so it was eliminated from the Hungarian list (Kontschán & Ripka 2017).

In the new species setae *sc1* are as long as *sc2* and femur I bears 10 setae oppose to *T. cerasi* where setae *sc1* are much longer than *sc2* and femur I has 9 setae. *Tetranychopsis matikashviliae*, has only six setae on femur I and *T. spiraeae* has short dorsal setae, but these setae are clearly longer in the new species.

Only two species of the genus *Tetranychopsis* occur in Central Europe. *Tetranychopsis horridus* (Canestrini & Fanzago 1876) is a very common species and usually widely distributed on the foliage of different hazel nut species. Setae *c2–c3*, *d2–d3*, and *e2–e3* of *T. horridus* are clearly shorter than dorsocentral setae oppose to not so clearly shorter with *c1* longer than *c2–c3*, *d1* shorter than *d2–d3* and *e1* almost equal to *e2–e3* in the new species. The second species, *T. hystriciformis* Reck, 1956 was recorded from Slovakia, where it was collected on *Potentilla* species (Bolland 2001). Setae *c2–c3* of *T. hystriciformis* differ in length, femur I has 8–9 setae and the dorsum is covered with pores, whereas in the new species setae *c2–c3* are equal in length, dorsum without pores and femur I has 10 setae.

### ***Mesobryobia terpoghossiani* (Bagdasarian, 1959)**

#### *Material examined*

One female. Hungary, Vértes Mountains, close to Csákberény (Fejér county), dry dolomite steppe meadow, from grasses, 47°20'39.2562"N, 18°20'58.5204"E, ca 150 m asl., 08 May 2019, leg. J. Kontschán (HNHM). One female, Hungary, Vértes Mountains, close to Gánt (Fejér county), Nagy Vásár-hegy, dry dolomite steppe meadow, from grasses, 47°25'33.9132"N, 18°25'3.4644"E, ca 250 m asl., 13 June 2019, leg. J. Kontschán (NHMG).

#### *Notes on host*

This species was collected from different Poaceae species (Bolland *et al.* 1998), only Zhovnerchuk & Auger (2019) found it on *Artemisia campestris* (Compositae). The Hungarian specimens were collected on different unidentified grasses.

#### *Remarks*

Two *Mesobryobia* species are reported from the Palearctic region. *Mesobryobia cervus* Wainstein, 1956 was described from Kazakhstan (Wainstein 1956). The second species, *Mesobryobia terpoghossiani* is known from Armenia (Bagdasarian 1959), Kazakhstan (Mitrofanov *et al.* 1987) and Black sea costal region of Ukraine (Zhovnerchuk & Auger 2019), but this species is reported from the Oriental region, from India as well (Menon & Ghai 1968). The Hungarian report of *M. terpoghossiani* is a very long distance apart from the previously mentioned records.

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